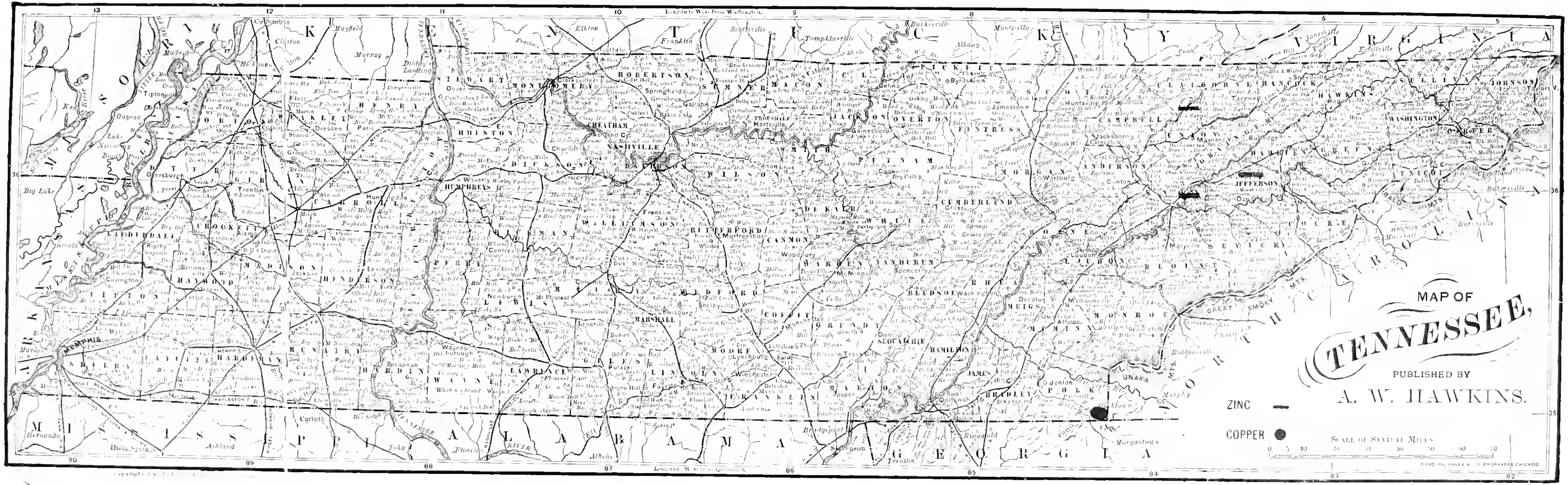
HAND BOOK

— OF —

TENNESSEE.


Yellow Springs
Cedar Fork
Tazewell
Liberty Hill
Tampico
New Market
Cynthiana
Cattlesburg
Wear's Valley
Emerts Cove
GREAT
Charleston
ZINC
COPPER
8


MAP OF
TENNESSEE,
PUBLISHED BY
A. W. HAWKINS.
ZINC
COPPER
KENTUCKY
VIRGINIA
NORTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
ARKANSAS
MISSOURI
GREAT SMOKY MTS.
UNAKA MTS.
MEMPHIS
Nashville
Chattanooga
Knoxville
Longitude West from Washington
Longitude West from Greenwich

HAND-BOOK

—OF—

TENNESSEE.

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GEOGRAPHY OF TENNESSEE.

Tennessee is bounded on the east by North Carolina, on the north by Virginia and Kentucky, on the west by the Mississippi River, which separates it from Missouri and Arkansas, and on the south by Mississippi, Alabama and Georgia. It lies between the parallels 35° and 36° 41' north latitude, and 81° 37' and 90° 28' longitude west from Greenwich. The width of the State from north to south is approximately 110 miles, while its length is about 430 miles.

MOUNTAINS.

Within the State are parts of two great mountain ranges which extend quite across, running from northeast to southwest. The first of these is the Apalachian chain, which by its greater axis forms the dividing line between North Carolina and Tennessee. These mountains, known locally as the Unakas or Great Smoky Mountains, occupy a belt within the eastern portion of the State, and as before stated, extend entirely across it. Their highest peaks rise to an altitude of more than six thousand feet. The mountain chain is cut into deep, rocky gorges, affording channels for the passage of tributaries of the Holston and Tennessee Rivers, which enter the State from North Carolina and Georgia. Entangled, as it were, between this mountain range and its outliers are a number of coves and valleys of great beauty and fertility.

The second mountain chain is known in Tennessee as the Cumberland Mountains, which enter from Southwestern Virginia and Southeastern Kentucky and extend to the Alabama and Georgia line. This range consists mainly of an elevated plateau or table-land, having a comparatively level surface and an elevation of about 2,000 feet. Its width varies from thirty to sixty miles. Its eastern escarpment is generally regular and precipitous. Walden's Ridge, which may be regarded as an outlier of the Cumberland Mountains, is separated from the main plateau by the Sequatchee Valley, and extends along its eastern base nearly

across the State, and gives rise to some peaks which tower considerably above the general level of the plateau. South of the Tennessee River, near Chattanooga, Lookout Mountain rises just within the limits of Tennessee and extends into Georgia. The western face of the plateau is much fringed and notched by coves which cut their way far into the mountain. Some of the western outliers form peaks which rise to the level of the plateau. This mountain range forms the dividing line between the civil divisions of the State, known respectively as East and Middle Tennessee.

RIVERS, LAKES, ETC.

Tennessee has three great rivers which, with their tributaries, constitute three great river systems. The first of these, as it finally receives the waters of the other two, is the Mississippi, which, in its tortuous, though generally southern course for several hundred miles, washes the western shores of Tennessee. The principal tributaries which empty into it within the State are the Obion, Forked Deer and Big Hatchee. These streams, rising in the interior, flow in a general northwesterly course until they reach the alluvial bottom of the Mississippi, when, taking a more southerly course, they debouch into that stream.

The next, with regard to size, is the Tennessee, the headwaters of which are formed in the mountainous regions of Virginia. Under the name of the Holston it enters Tennessee and forms a junction with French Broad River near Knoxville, where it takes the name of the Tennessee. In its course through East Tennessee its volume is increased by the waters of the Watauga, the Nola Chucky, the French Broad, the Little Tennessee, the Hiawassee and other streams which have their sources in the mountains of North Carolina, the Ocoee from Georgia and smaller streams from the Cumberland Mountains. Finally, breaking through Walden's Ridge into the Sequatchee Valley and following the trough of that valley, it crosses into Alabama, whence it again returns to Tennessee and runs in a northwesterly course across the State into Kentucky, where it falls into the Ohio. In its second course through the State it separates the civil divisions of Middle and West Tennessee. Its principal tributaries, after re-entering the State, are Duck River from the east and Beech and Big Sandy from the west. The Tennessee River is navigable at all seasons from the mouth at Paducah, Ky., to the Mussel

Shoals in Alabama. Above these shoals it is again navigable to Kingston, and in favorable seasons to Knoxville.

The Cumberland River rises in Southeastern Kentucky, and, pursuing a generally southeasterly course, enters Tennessee in Clay County. With a beautiful curve it sweeps toward the central portion of the State and passes through the city of Nashville, thence by a northwesterly course it seeks an outlet into Kentucky and empties into the Ohio at Smithland. Its principal tributaries are the Obed, Roaring, Caney Fork, Harpeth and Red Rivers. The entire length of the Cumberland is about 650 miles, and, with proper improvements, it can be made navigable for nearly 600 miles.

Besides these rivers and their tributaries, there are many streams of smaller size, rivers and creeks, which furnish excellent water-powers. These, however, will be noted in the descriptions of the counties to which they pertain.

In the alluvial valley of the Mississippi there are many lakes and bayous, but only one of sufficient importance to demand special notice. Reelfoot Lake is a curious body of water lying between the counties of Obion and Lake. It is about eighteen miles in length by from one to three miles in width. In many places the water is shallow, but at some places is of unknown depth. The waters have an outlet through Reelfoot Creek into the Obion River. This lake is said to have been formed by the earthquakes of 1811, which are supposed to have depressed the area now covered by water below its former level. The lake is a great place of resort for sportsmen who have a fondness for the rod and gun, as both fish and fowls are found in abundance.

TOPOGRAPHY.

Topographically considered, Tennessee presents eight natural divisions. These divisions are described as follows:

First, the *Unaka* division, including the extreme eastern portion of the State, and embracing a belt of country from Virginia to the Georgia line. It includes the greater portion of the counties of Johnson, Carter, Greene, Sevier, Blount, Monroe and Polk. The face of the country is exceedingly rough. Many of the mountain peaks rise to the altitude of from five to six thousand feet, and are on top entirely destitute of timber. The chains of mountain ridges are cut in numerous places by deep, rocky channels, through which the limpid mountain streams rush to the valley below. Nestling among these giant Unakas are many beautiful coves and valleys which afford homes for a contented and happy people.

Our second division having distinct topographical features is the *Valley of East Tennessee*. This division extends across the State from north to south, being limited on the east by the Unakas and on the west by the Cumberland Mountains. It is called a valley with reference to these mountain ranges, and, with outlying coves and valleys, embraces in whole or in part the following counties: Hancock, Hawkins, Grainger, Union, Jefferson, Knox, Roane, Meigs, Bradley, Hamblen, Carter, Johnson, Washington, Greene, Sevier, Cocke, Blount, Monroe, Polk, Claiborne, Anderson, Rhea, James, Hamilton, Bledsoe, Sequatchie and Marion.

This so-called Valley of East Tennessee is, in point of fact, a succession of narrow ridges and valleys, of greater or less width, trending from northeast to southwest. The ridges sometimes rise to the altitude of mountains. The valleys are traversed by beautiful streams, some of which are navigable and all of which afford abundant water-power. This division affords much valuable arable land which has been converted into beautiful farms, and which constitutes one of the best developed and most populous agricultural districts of the State.

The Cumberland Plateau or Table Land constitutes our third division, embracing the whole or parts of the following counties, to-wit: Scott, Morgan, Cumberland, Fentress, Van Buren, Bledsoe, Grundy, Sequatchie, Marion, Claiborne, Campbell, Anderson, Rhea, Hamilton, Overton, Putnam, White, Franklin, Warren and Coffee. As this division has already been described under the head of the Cumberland Mountains a repetition is unnecessary. This is the coal region of Tennessee.

The fourth and fifth divisions must of necessity be spoken of in connection with each other, as the fifth is entirely encircled by the fourth. In the very center of the State there is a depression of an oval form, extending nearly across the State from north to south, having in this direction a length of about 80 miles, by a breadth from east to west of from 30 to 60 miles. This depression is known as the *Great Central Basin*, and is our fifth division. Surrounding this basin is a circle of highlands, known as the *Highland Rim of Middle Tennessee*. This is our fourth division, and extends from the western base of the Cumberland Mountains to the western valley of the Tennessee River, and from the northern to the southern boundary of the State. This highland rim has an elevation of about 1,000 feet above the level of the sea. These highlands, though called a rim, in many places spread into extensive plateaus. The edges of the rim which immediately surround the basin are much cut and fringed by narrow valleys which reach out into the highlands. The streams which have their sources at high altitudes have cut deep channels, down which they rush impetuously over rapids or leap in cataracts to the basin below. The Cumberland River forces its way through the surrounding rim into the central basin, whence it escapes in a northwesterly direction.

The Central Basin is essentially different in its topographical features from the surrounding highlands. The surface is generally undulating, though rounded knobs and hills are frequently met with. The land is generally fertile and well adapted to cultivation, though considerable areas are found which are covered with shaly limestone, which renders them unfit for tillage.

These two divisions extend over all of the civil division of Middle Tennessee, except so much of it as lies upon the Cumberland Plateau and in the western valley of the Tennessee.

Our sixth division is a comparatively small one, being restricted to the generally narrow and somewhat rugged valley of the Tennessee River in its western passage across the State after its

return from Alabama. This valley is irregular in form; sometimes the ridges or spurs of highlands upon the one side or the other jut quite into the river bank. At some points where the valley has greater width it is partly occupied with lagoons and marshes. Some points in this valley present considerable areas of fertile tillable land. On some of the tributaries of this stream, especially Duck River on the eastern side and Big Sandy on the western, arms of the valley extend far into the interior and have much arable land. The ascent from the valley on each side is generally abrupt and often precipitous.

The seventh division comprises the great plateau or *Slope of West Tennessee*, extending from the valley last described to the bluffs bordering the alluvial bottom of the Mississippi. This vast area, covering nearly all of seventeen counties, is, for the most part, a gently-undulating plain. Rising rapidly from the Tennessee Valley till an average elevation of about 700 feet is reached, this plateau then gradually falls off to the west, or northwest, till the western bluffs are reached, at a distance of about 100 miles. Traversing this area are occasional ridges of low hills, generally irregular in direction, but with a tendency from northeast to southwest. There are also numerous streams, running generally to the northwest, with broad valleys and sluggish currents. In some localities these valleys are marshy and unfit for cultivation, but, taken as a whole, this section is one of great fertility, and capable of sustaining a dense population.

The eighth and last of these divisions embraces the *Alluvial Valley of* the Mississippi, so far as it lies within the limits of Tennessee. On its eastern side, where it is outlined by the bluffs, it pursues a tolerably direct line from northeast to southwest; but on the western side, where its limits are marked by the devious course of the river, it is quite irregular. At Fulton, Randolph and Memphis the river washes the foot of the bluffs, cutting the valley into sections. The general aspect of this valley is low and marshy. Many small lakes and lagoons are found in its limits. It is covered with dense growth of timber and is of exceeding fertility. Portions not marshy are in cultivation and yield heavy crops.

GEOLOGICAL FEATURES.

It is no part of my present purpose to enter into a minute examination of the geology of Tennessee, but to present merely such outline of its various formations as will enable the intelligent reader to form a proximate estimate of the soils and minerals of the various sections of the State.

As all soils have been formed either by the decomposition of the superincumbent rocks, gradually becoming intermingled with decayed vegetable matter, or by the deposit of earthy matter from water which may at some period have covered the surface, it follows that the soil must be such as results from such decomposition and the character of the watery deposits.

According to geologists, the rocks of Tennessee are referred to eight different groups, containing the formations of thirteen periods. These, beginning from the lower or oldest formations and upward to the later formations, are:

1st. *Metamorphic*, Metamorphic rocks.

2d. *Lower Silurian*, embracing the Potsdam, Quebec and Trenton periods.

3d. *The Upper Silurian*, containing the Niagara and the Lower Helderberg.

4th. *The Devonian*, with a single period, the Hamilton.

5th. *The Carboniferous*, containing the Lower Carboniferous and the Coal Measure periods.

6th. *The Cretaceous*, with the Cretaceous periods.

7th. *The Tertiary*, with the Tertiary period.

8th. *The Quarternary and Modern*, embracing the Quarternary, the Terrace and the Human periods.

These thirteen periods in their turn contain twenty-six formations:

1st. *The Metamorphic* formation.

2d. *The Potsdam*, containing the Ocoee and the Chilhowee Sandstones.

3d. *The Quebec* period gives the Knox Sandstone, the Knox Shale and the Knox Dolomite.

4th. *The Trenton* period has the Trenton or Lebanon and the Nashville or Cincinnati Limestone.

5th. *The Niagara* period has the Clinch Mountain Sandstone, the White Oak Mountain Sandstone, the Dyestone group, and the Niagara Limestone.

6th. *The Lower Helderberg* has only the Helderberg Limestones.

7th. *The Devonian* period gives only the Black Shale.

8th. *The Lower Carboniferous* period has the Barren group, the Coral or St. Louis Limestone and the Mountain Limestone.

9th. *The Coal Measure* period contains only the Coal Measures.

10th. *The Cretaceous* period contains the Coffee Sands, the Rotten Limestone or Green Sand and the Ripley Sands.

11th. *The Tertiary* period gives the Flat Woods Sands and Clays, and the Lagrange Sands.

12th. *The Quarternary and Modern* period furnishes the Orange Sand or Drift, the Bluff Loam or Loess and Alluvium.

These formations occupy, with more or less distinctness, different portions of the State, and exercise their special influence upon the soils where they prevail.

I shall briefly refer in this chapter to the localities in which they respectively prevail, and the general character of the soil which they furnish and the principal minerals which they contain.

The Metamorphic rocks are found only in the limited area occupied by the Unaka Mountains on the North Carolina border. The soil resulting from their disintegration is adapted to the growth of wild grasses, and in some localities yields a fine growth of timber. The magnetic iron of Carter County and the copper of Polk are found in this formation.

The Ocoee group embracing conglomerates, slates and sandstones, forms a belt extending from the Georgia line running parallel with the North Carolina line and including portions of Polk, Monroe, Cocke and Greene Counties. The soil is of the same general character as the preceding, but this section contains interpolated beds of limestone, which yields a more generous soil. The greater part of this section is mountainous, but abounding in excellent summer pasturage. Roofing slate and some gold are found in this formation.

Chilhowee Sandstone. This rock is found in the Chilhowee and similiar mountains, outliers of the Unaka range. It

occupies portions of the eastern counties of the State. The soil is of little value for tillage, but the mountains in summer are clothed with succulent grasses.

Knox Sandstone outcrops in the long narrow ridges which intersect East Tennessee from Northeast to Southwest. It is found in nearly every county in this division of the State. By its resistance to erosive influences, it maintains the ridge-like form. The soil which it yields lacks fertility. It contains many valuable beds of iron ore besides other minerals.

Knox Shale. This may be called a group rather than a single formation, as the shale is largely intermixed with different forms of calcareous or siliceous rocks. This group occupies many beautiful valleys, which traverse East Tennessee. Owing to the presence of large quantities of calcareous and siliceous matter in the soil, it is highly productive and yields abundant crops. Some beds of iron ore are found in this formation.

Knox Dolomite. This formation occupies a large portion of the valley of East Tennessee, but is found no where else in the State except in a limited area in Houston County. It is a Magnesian limestone of great thickness. By disintegration, it affords an excellent soil. Much of the fine arable land of East Tennessee rests upon Knox Doxomite. This formation contains many valuable beds of iron ore besides Galena, ores of zinc, manganese, and other minerals.

Trenton or Lebanon and Nashville or Cincinnati Groups. These formations, for our present purpose, may be treated together. They consist mainly of blue limestone, but are not homogeneous, containing in many places, chert sandstone and various other rocks.

In East Tennessee, these formations occupy considerable territory. They also occupy nearly the whole extent of the great central basin of Middle Tennessee. For fertility and adaptation, for cultivation, the soil, resulting from these rocks is scarcely surpassed. Besides the localities named, these rocks are found in the Well's Creek basin, and in the bed of the Tennesse River in its western valley. Locally, these formations run into Hydraulic limestone, and in East Tennessee the Trenton contains many interpolated beds of beautiful marble.

Clinch Mountain Sandstone, is found principally in the Southern faces of Clinch, Powell's and Lone Mountains, in the counties of Grainger, Hawkins and Hancock. The soil which it yields is poor.

White Oak Mountain sandstone is found on White Oak, Lone

and Powell's Mountains. The soil is of little value, but valuable beds of iron ore are found connected with this formation.

Dyestone Group. This formation contains alternating layers of shale, sandstone and fossiliferous iron ore. It is found in narrow ridges running parallel with and near the base of the Cumberland Mountains, extending with only slight interruptions across the State. The soil, though covering but a limited area, is fertile.

Niagara Sandstone. The outcrops of this formation occur principally in the western valley of the Tennessee River, and some of the tributary valleys of that stream. The Menisens limestone, which is the lowest member of this formation, at some points in this section, yields a fair marble. The disintegration of this rock yields an excellent soil.

The Lower Helderberg occurs in the same region as the preceding, and though its area is small, furnishes an excellent soil.

Black Shale. This formation outcrops at various points in Middle and East Tennessee. Though a wide-spread formation, being generally covered by other formations, it forms the basis of the soil in only a few unimportant valleys in East Tennessee. The soil is not good.

Barren Group. This group is found in linear outcrops in the valley of East Tennessee, where, however, it does not possess much importance. It occurs again in the rim of highlands surrounding the central basin of Middle Tennessee, confined mainly to the inner circumference of the rim. It is composed of heavy chertz layers, with more or less limestone, which sometimes assumes a shaly character. The soil is leechy, though produces luxuriant growth of coarse grass.

Coral or St. Louis Limestone. This formation covers by far the larger part of the Highland Rim. It is a grayish or blueish limestone with chertz layers and fossilliforous corals. It contains oxide of iron from decomposed chert, which gives the soil a reddish color. The lime which it contains makes it a truly calcareous soil. It is of various degrees of fertility, some of it being equal to the best in the State. It contains many rich beds of iron ores.

Mountain Limestone. This rock has its principal exposure on the western slope of the Cumberland plateau, but is found also on the eastern face. Its geological position is above the coral or St. Louis limestone. By disintegration it yields a rich, strong soil, giving fertility to many of the slopes and coves of the plateau.

The Coal Measures, occupy the entire area of the Cumberland table-land. This formation is made up of alternating layers of conglomerates, shales and sandstones, with intervening seams of coal. The coal is bituminous, generally of good quality, and the seams of varying thickness. The general character of soil which these rocks supply is sandy and poor, though yielding abundantly of coarse grass, and is adapted for the cultivation of fruits.

I have now briefly presented the leading geological features of two great divisions of our State, East and Middle Tennessee. The Geological formations of West Tennessee are entirely different from those already described, being of a later date and found in less solidified condition. The older formations, already described, terminate with more or less abruptness in the immediate vicinity of the Tennessee River, the line of demarcation being for the most part a short distance to the west of the stream, where the beveled edges of the old and new formations meet. The great plateau or slope of West Tennessee is supposed to have been at some former time, the bed of a lake or inland sea of unknown depth, which has been filled up and elevated by the operations of natural forces in past ages. At what time, or in what manner the dry land was made to take the place of this "old time sea," I shall not undertake to discuss. My business is with the formations as they now exist. These have been referred to three epochs or periods of time.

The first of these formations is the *Coffee Sand*, which is found immediately to the west of the old shore line. In Hardin County, it reaches the Tennessee River, and continues its course in a narrow belt parallel, and near to it more than half way across the State, where it disappears. It is composed of layers of sand and clay. The sand usually contains small grains of mica and fragments of wood partially carbonized. The soil is of medium fertility.

Green Sand. This formation comes next in order, bordering the coffee sand on the west, and overlapping it in many places. It outcrops over an area a few miles in width, and extends some sixty miles in length, from the Southern line of the State northwardly. Beyond the area of its outcrops it is found as an underlying strata at many points westward. It is a clayey sand containing grains of a green mineral called glauconite, to which its characteristic color is owing. So far as I know no satisfactory analysis of this material has ever been made. It is supposed however, to possess valuable fertilizing properties and should be

fairly tested. At various points in this belt, there are extensive deposits of marine shells in a good state of preservation. The soil is fairly productive.

The Ripley Group. This formation outcrops in a belt of from ten to fifteen miles in width, extending entirely across the State from the Mississippi line. It contains at many places masses of ferruginous sandstone of greater or less thickness. These sandstones are composed of siliceous particles held together by hydrated oxide of iron, and are common to all the sandy formations of West Tennessee.

Of the tertiary formations, we have first, *The Flatwoods Sands and Clays.* This name was given by Prof. Hilgard, formerly State Geologist for Mississippi, but our own eminent Geologist, Dr. Safford, designates it as the *Porter's Creek Group.* It, like the preceding formations, is composed of alternating layers of sands and clays, though the proportions of laminated clays is much larger, being at some places from fifty to one hundred feet in thickness. These clays are usually dark when wet, but become grayish when dry. At some points they are white and are used to a limited extent for the manufacture of pottery, and are thought to be suited for the manufacture of porcelain. The sands are white, buff, yellow or variegated. This belt, like the preceding, extends entirely across the State. Dr. Safford gives it a width of not more than eight miles. My own observation, however, leads to the belief that the area has a greater width than is given by Prof. Safford. The soil is of the same general character as the formations already described.

The LaGrange Sands. This group occupies quite a considerable portion of West Tennessee, being in width approximately given at forty miles, and extending from North to South quite across the State. It is bounded on the east by the Porter's Creek group, and on the west by the Bluff Loam or *Loess*, next to be described. The eastern portion of this area is broken into gentle hills or ridges, while the western part is more level. The soil possesses great fertility. As an agricultural region, it is of great value.

Bluff, Loam or Loess. This is a deposit of fine silicious loam crowning the uplands of the western tier of counties. It extends westwardly to the bluffs which border the Mississippi River. At some points it is broken into hills, but where level or undulating, the soil is of excellent quality and constitutes one of the finest farming sections in the State.

Alluvium. This is the last formation to be noticed. It is not confined to any one section of the State, but is found in the lowlands or bottoms along the course of nearly all our rivers. It occupies the entire area between the bluffs and the Mississippi River. Much of it is subject to overflow. The soil is of richest quality.

COAL.

The superficial area in the State of Tennessee covered by coal bearing strata, amounts to 5,100 square miles, but this does not fairly represent the amount of coal in the State, as all this area has at least one seam of coal, a large proportion more than two, and a very considerable area has six or more workable seams. It is thus seen that the mere area of a coal field, may be a very poor indication of the quantity of coal it contains, and without an examination into the thickness of the seams, and the quality of the coal therein, any judgment formed from area alone may be very incorrect. Missouri contains vastly more coal area than Tennessee, yet one seam in Tennessee is worth more for economic purposes than all the coal of Missouri.

In Pennsylvania there is a formation under the regular coal series known as the False Coal Measures, having only thin bands of coal; in Tennessee, these measures contain several workable seams of coal of excellent quality. The Lower and Upper Measures of Pennsylvania also appear in this State, but the great mass of rocks of the barren measures appear in much reduced thickness. It is thus seen that while Tennessee has all the bituminous coals of Pennsylvania, this State has also a coal-bearing strata which in that is bare of any productive seams. While the area covered by our coal field is not so large, yet it is probable that we have as much or more of this mineral fuel—the anthracite field excepted—than the great iron State.

The Tennessee coal field belongs to that division known in geology as the Appalachian Coal field, which, commencing in Pennsylvania, extends over Ohio, Kentucky, West Virginia, Tennessee, and ends in Alabama. While its width in Pennsylvania and Ohio extends through nearly four degrees of longitude at the northern boundary of Tennessee, it is only about seventy-one miles, and at its southern boundary fifty miles. In its southern course into Alabama it expands into a heart-shaped area one hundred miles or more in width. The area of this coal-field in Tennessee includes within its limits the counties of Scott,

Morgan, Cumberland, the greater parts of Fentress, Van Buren Bledsoe, Grundy, Sequatchie and Marion, considerable parts of Claiborne, Campbell, Anderson, Rhea, Roane, Overton, Hamilton, Putnam, White and Franklin, and small portions of Warren and Coffee.

The Cumberland Table-land has generally a broad flat top, capped with a layer of conglomerate sandstone, averaging perhaps seventy feet in thickness. This layer of sandstone on the western edges of the table-land forms a steep escarpment or brow, bold, distinct, and well marked from twenty to one hundred, and sometimes two hundred feet high. Beneath this often overhanging brow, the steep, woody slopes of the sides begin and run down to the low lands. These slopes below the cliffs usually rest against the lower Coal Measures and upon the Mountain Limestone. The eastern outline of the Cumberland Table-land is, for some distance, a nearly direct line, making, however, a curve, and taking in portions of Roane, Anderson and Campbell counties. The western edge is jagged, notched by innumerable coves and valleys, and presenting a scalloped or ragged contour, with outlying knobs separated from the main Table-land by deep ravines or fissures. In the southern portion, near the eastern side, is a deep gorge, canoe-shaped, with steep escarpments rising eight hundred to one thousand feet above the valley, through which the Sequatchie river flows. This is the Sequatchie valley which separates the lower end of the Table-land into two distinct arms. Through the eastern arm the Tennessee River breaks, and after flowing down the valley for a distance of sixty miles, turns at Guntersville, Alabama, and soon afterwards cuts through the western arm fifty miles from the Tennessee line. This Sequatchie Trough is one hundred and sixty miles in length, the Tennessee end being sixty miles, and the Alabama end one hundred.

The eastern arm of the coalfield, on the western side of which this remarkable valley passes, is six to eight miles wide. Between the Tennessee River and the Nashville and Chattanooga Railroad, it is called Raccoon mountain. Separated from this by Wills' valley, rises up in massive proportions, Lookout Mountain. The latter is an outlier of the Cumberland Table-land, and geologically is closely allied to it.

Passing now to the northeast corner of the coal region, we find a quadrilateral block almost severed from the mountain mass by the valleys of Elk Fork and Cove Creek, the former running

northeast and emptying into the Cumberland River, the latter running southeast into the Clinch River.

The average height of the Cumberland Table-land is two thousand feet above tide-water, but some of the ridges of the northeastern part rise to a much greater height, reaching at places, as at Cross Mountain, 3,370 feet, and at Butt Mountain, near Coal Creek, 3,500. The valley of Cove Creek is 2,500 feet lower than the high points of Cross Mountain. The part of the valley of East Tennessee immediately contiguous to the mountain is about 1,000 feet above the sea, so that, viewed from that valley, the Cumberland Table-land stands out with singular boldness and sharpness of outline. Everywhere in the northern part it is marked by a succession of cliffs, elevated one above the other, with intervening wooded slopes. On the eastern side, parallel with the main mountain mass, and separated from it by a narrow vale, is a steep, roof-like sandstone ridge, with the layers upturned on their edges, the only access being through a few gaps like that of Coal Creek. This ridge is known as Walden's Ridge. Following this ridge southward, the name is applied to the whole area between Sequatchie Valley and the valley of East Tennessee.

We have said that this coal region is sheeted with a thick conglomerate sandstone, but upon this sheet, a short distance from the edges of the precipices, other strata are superimposed, rising in some places, one thousand feet and more above the conglomerate or general surface, and forming, as it were, mountains upon the top of the table-land. In the northern part of the coal region, its plateau character is destroyed by these superincumbent mountains.

While there should be a division of the Tennessee Coalfield into Lower, Middle, and Upper measures, from the fact that the False measures contain workable coal, and that the true Upper measures only appear north of Emery river, yet the line of demarcation between the two last has not been so well defined, and the usual classification has been into Upper and Lower measures, the division being the thick conglomerate which gives the cliff-like appearance to the mountain on its western side. The second conglomerate or sandstone which caps the plateau throughout its length, is over what should be called the Middle measures, really the Lower measures of Pennsylvania. A section made near Tracy City by Dr. Safford, will give an idea of the different strata and their relative positions at that place.

Beginning at the top and descending, as though in a well or shaft, we have this Sewanee section.

13.	Conglomerate; cap rock of the upper plateau and the uppermost stratum in the region	50 feet.
12.	Coal, a few inches (G)	
11.	Shale	23 feet.
10.	Coal, outcrop (F)	½ foot.
9.	Dark Clayey Shale	1 foot.
8.	Sandy Shale	25 feet.
7.	Sandstone	86 feet.
6.	Shale, more or less sandy	45 feet.
5.	Coal, Main Sewanee, from (E)	3 to 7 ft.
4.	Shale, some of it sandy	45 feet.
3.	Coal, outcrop (D)	1 foot.
2.	Shale	3 feet.
1.	Sandstone	17 feet.
	Total	200 feet.

We here reach the bottom of the Upper coal measures, and come to the thick conglomerate that caps the whole coal region. Descending, we pass successively through

	Conglomerate	70 feet.
10.	Coal, outcrop from (C)	½ to 1 ft.
9.	Shale, with clay at top	10 feet.
8.	Sandstone, Cliff Rock (Lower Conglomerate of Ætna Mines)	65 feet.
7.	Coal, outcrop from (B)	½ to 1½ ft.
6.	Shale, with a few inches of adulterated clay at top	8 feet.
5.	Sandy Shale	22 feet.
4.	Sandstone, hard	78 feet.
3.	Coal, has occasional shale above and below it; the coal from (A)	1 to 3 ft.
2.	Hard Sandstone, local	20 feet.
1.	Shale, including a thin sandstone	20 feet.
	Total	228 feet.

Including the Upper and Lower coal measures, there are seven strata of coal, aggregating a thickness of from seven to fourteen and a half feet. Many of these beds, however, are too thin to work, and are given merely to show the extent of the coal measures.

The Lower measures, though irregular and uncertain, supply a large amount of coal in White, Putnam, Overton, Fentress, Franklin, and Marion counties. The seams in these counties are of good thickness and afford coal of excellent quality.

The main seam of the Upper measures on the western side of the Table-land is the Sewanee. This seam will average four and

a half feet in thickness, its largest development being ten feet four inches, and its least two feet.

The Sewanee seam furnishes a larger amount of coal than any other single seam in Tennessee, and has all the qualities that combine to make a useful and valuable coal. It varies in some of its characteristics and constituents in different localities, but that is a common freak of all coal seams in every coal-field. It makes a good coke, is a good steam-making coal, makes a hot, durable fire in the grate, and is nearly free from sulphur. It is found at a certain elevation all over the Table-land, but in the horizontal strata of the Coal creek and Winter's Gap section of the field it has probably sunk far beneath the surface. It is the main seam of Walden's ridge, and continues with much persistency from Chattanooga to Coal creek. Where the ridge is regular in surface, and the strata in place, the seam is of regular thickness and easily worked with a certainty of obtaining a constant supply, but where the strata are broken by ravines or gorges, it is also disturbed, sometimes lost entirely, and again rising into great thickness.

Walden's ridge is an outlier of the Cumberland Table-land, for the greater part of its length a vast wall of upturned rocks, ranging from six hundred to twelve hundred feet high. This singular formation is best seen north of Big Emery Gap. A base line drawn horizontally through the ridge would probably give a width of twelve hundred feet. The line of demarcation between the inclined strata of Walden's ridge and the horizontal layers of the Cumberland mountains is sharp and well defined. Within a few feet one steps from the almost vertical sandstones of Walden's ridge to those of the Cumberland Table-land lying horizontal. Behind he sees the steep inclined crags of Emery Gap, and in front the shales, slates, and sandstones lying one on the other. This ridge is most continuous and conspicuous in its tilted strata from Big Emery Gap to near Careyville, but those peculiar characteristics are gradually lessened to the southwest from Emery Gap, until near Chattanooga the dip of the strata is very slight, and its top instead of being a narrow ridge, flattens out into a plateau six to eight miles wide. The greatest action of the downthrow, therefore, took place between Emery Gap and Careyville, and to its action, says Prof. Lesley, is due the preservation of the numerous beds of coal in the high mountains on Poplar creek, at Winter's Gap, and on Coal creek.

It has been assumed that the inclined seams of Walden's

ridge pass down under the surface strata of the Cumberland mountains, and become as nearly horizontal as the coals of that formation. No accurate demonstration of this has ever been made but the record of the borings of the salt well at Winter's Gap, though not strictly accurate, gives an idea upon which may be based some foundation for the truth of this theory. The salt well was originally bored by Prof. Estabrook but allowed to fill up. Lately another was bored by Mr. E. A. Reed, of Ohio.

On the western side of the coal field the general dip of the strata is slightly to the northeast. The elevation of the sub-carboniferous limestone on the mountain side near Tracy City is about sixteen hundred feet above the sea. On a direct east line, near the foot of Walden's ridge, the same rock is only about nine hundred feet above the sea; on the line of the Tennessee and Pacific road, in Putnam county, the limestone is about fourteen hundred feet above the sea, while in a direct east line, near Winter's Gap, in the valley, it is only eight hundred feet above sea level. The level of the valley at Cowan is nine hundred and seventy-three feet above sea level, and the level of the Sewanee seam at Tracy City is nine hundred and forty-nine feet higher. This seam dips to the southeast about eight feet to the mile; hence from its location in Fentress, in the fifty miles distance to Winter's Gap, it would be deep down under the horizontal strata of the high mountains, though coming up again above the valley in Walden's ridge. *

Towering high above the valley, in Anderson, Morgan and Campbell counties is the series of mountains heretofore mentioned. They reach an altitude of over three thousand five hundred feet above sea level, and contain coal seams to their very summits. Here is the equivalent of the Upper Measures of Pennsylvania. And it is safe to assume that the carboniferous strata in this region, estimating by the data derived from the boring of the salt well at Winter's Gap, attain a thickness of full four thousand feet in a direct vertical line from the top of the American Knob or Brushy Mountain to the lowest sub-conglomerate coal. At Careyville Prof. Safford determined the elevation of Cross Mountain, with nine seams of coal, to be three thousand three hundred and seventy feet above the sea, and two thousand three hundred and twenty-nine feet above the valley. This is at the northeastern end of the Upper Measures, as the still higher Brushy Mountain is near the southwestern end. In this distance of about forty miles, is the series of high ranges

and peaks alluded to above. Hence we have in this district an area of about two thousand square miles, the greater portion of which contains, above water level, from four to seven seams of coal over three feet thick; thus showing, in this part of the Tennessee coal field alone an extent of thickness and a number of seams, available in the future, beyond the previous calculations of geologists.

The largest mining operation on the Tennessee coal field is that of the Tennessee Coal, Iron, and Railroad Company at Tracy City. The seam of coal worked there is known as the Sewanee seam, and is so marked in the section previously given. The qualities of this coal have also been spoken of in the preceding pages. They work four different mines, and besides selling coal, have six hundred ovens for making coke. The company owns a railroad twenty-three miles long, which connects their mines with the main line of the Nashville, Chattanooga, and St. Louis road at Cowan; and they also own three iron furnaces, one at Cowan and two at South Pittsburgh. They also have other coal mines and coke ovens at Victoria in Sequatchie valley. The coke from the latter almost entirely goes to South Pittsburg furnaces. This company has a capital of $3,000,000, most of which is held in New York, and they employ about fifteen hundred laborers.

The Coal Creek Mining and Manufacturing Company is a corporation owning many thousand acres of land in Anderson county, on which it has given leases for coal mining, but the company itself does not mine any coal. Coal creek, in Anderson county, is the locality where the mining is carried on. There are now five companies engaged in mining there under leases. The Coal Creek Mining and Manufacturing Company, and two other companies mine lands of their own. The joint product shipped from this locality amounts to about one hundred and fifty thousand tons per annum. The coal here mined is entirely used for domestic and steam purposes, and for making gas. It finds an outlet to market over the Knoxville and Ohio railroad to Knoxville, and thence south and east by the East Tennessee, Virginia, and Georgia Railroad. The largest mining operation is carried on by the Knoxville Iron Company. They employ about one hundred and fifty miners and other laborers, and ship about one hundred thousand tons of coal per annum. The company also owns a large rolling-mill and foundry in Knoxville.

The Roane Iron Company at Rockwood, on the Cincinnati Southern railroad, mines coal for use in their iron furnaces, but does not furnish any for shipment. They mine about sixty thousand tons per annum.

The Soddy Company's mines at Rathburn station, on the same railroad, are the next largest mines in operation. They mine both for shipment in the raw state and made into coke. Their product amounts to fifty thousand tons.

The Oakdale Iron Company mines from the Poplar Creek Coal field at Winter's Gap, a large quantity of coal which is made into coke for their furnace. Their present output reaches over one hundred and twenty tons per day, and preparations are being made to increase it so as to ship coal next winter. Their coal is of the very best quality. They own a narrow-guage railroad sixteen miles long, which connects with the Cincinnati Southern at Oakdale junction.

The Etna Mining Company owns mines on the Nashville, Chattanooga, and St. Louis Railroad, about fourteen miles from Chattanooga. Their coal is of very superior quality for blacksmith's purposes, as is also the coke made from it for use in foundries. They mine about twenty-five thousand tons per annum, of which fully one-half is made into coke.

The other mining operations of the State are: —

The Campbell County Coal Company, Careyville, Knoxville and Ohio railroad.

The Crooke Coal Company, Glen Mary, on the Cincinnati Southern Railroad. This is a concern of considerable magnitude, and has capacity to ship six hundred tons per day.

The Helenwood Coal Company, Helenwood, on the same railroad, is owned by the same company. They have well opened mines.

The Walden's Ridge Coal Company operates on the mountain near Spring City. They have a narrow-guage road nearly finished.

The Dayton Coal Company is an English concern which has for many years owned lands near Dayton, in Rhea county, and now propose active operations.

These companies are more fully noticed by a letter in the appendix.

The Daisy Coal Company, Melville; Parkes & Co.

The Chattanooga Coal Company, Chattanooga. This is a new company who have commenced operations on a very large scale,

on the top of Walden's Ridge, near Chattanooga. They have a narrow-guage road seven miles long, and have made every preparation for a large output. Hon. E. A. James is president of the company.

A new company is about operating at North Chickamauga.

Near the University of the South, several small mines are worked, chiefly by the University Coal Company.

In White county two or three mines are worked for local purposes by John Barnes & Sons. The completion of the McMinnville branch of the Nashville, Cincinnati and St. Louis Railroad will give them opportunity for shipment.

The total coal product of the State of Tennessee, for the year 1881, is not far from six hundred thousand tons.

The prices of coal for the month of January, 1882, were —

In Knoxville: Domestic coal, at yards in the city, $3.75 per ton of 2,000 pounds; delivered, 25 cents more. Steam coal, on cars in the city, $2.20 per ton.

In Morristown: Domestic coal, $4.79; steam coal, $3.50.

In Jonesboro: Domestic coal, $5.00.

In Athens, $14.80.

In Cleveland, $4.25.

Low rates of freight are made by the East Tenn., Va. & Ga. Railroad for steam coal.

In Chattanooga: Coal Creek coal, domestic; $3.50 per ton. Soddy coal, domestic, $3.25 per ton. Soddy coal, for steam, $3.00. Sewanee and Dade coke, $2.50 to $3.00 per ton. Extra Foundry coke, 12½ cents per bushel.

In Nashville: Domestic, lump, $3.80 per ton delivered; small for cooking, $3.20; steam coal on cars, run of mines, $2.70; slack, $1.80; lump, $3.00 per ton of 2,000 pounds. Anthracite, $10.00 to $12.00 per ton.

Freight on the railroads three-fourths to one cent per ton per mile for over 25 miles.

IRON ORES.

The State of Tennessee contains every variety of iron ore known to commercial use, except the Spathic Carbonate. The area of the Magnetic ores, and of the azoic Hematites is not large, yet in the limited area where found, the magnetic ore exists in large quantity. The mass of unaltered deposit ores, however, is beyond the possibility of any accurate computation, and the area in which they are contained comprises nearly three-fourths of the State.

Geographically, these ores may be classed as the East Tennessee Iron Region, the Cumberland Mountain Iron Region, and the Middle Tennessee Iron Region. Geologically, they belong to the Metamorphic, the Lower and Upper Silurean, the Sub-Carboniferous, and the Carboniferous periods. Physically, they are vein, stratified and deposit ores, and in practical nomenclatius of ores; they are magnetic, specular, red hematite, or really hematite, limonite, frequently called brown hematite, red fossil or lenticular red hematite, and carbonate of iron. Of these ores, those now used in the State are only the limonites and red fossil. The magnetics have been mined, and some years ago used in a small way in forges, but none have yet been used in blast furnaces or shipped to any market, and the azoic hematites are known only by small openings and specimens of more or less size.

The limonites are found over the largest territory and have been most generally used of the two chief ores of iron. They are found in nearly every county of the State in greater or less quantities, from the North Carolina line to the sand belt which borders on the Mississippi River. In some counties the quantity is enormous, in others only scattered specimens, and the quality is equally variable; some beds are almost chemically free from phosphorus or sulphur, while in others those injurious elements are found to a greater or less extent.

In East Tennessee, this ore lies in a series of ridges running northeast and southwest; its greatest developments being on the east side on the western slopes of the Chilhowee and Unaka

Mountains and their tributary ridges. Throughout the entire breadth of the State in the counties of Johnson, Carter, Unicoi, Washington, Greene, Cocke, Sevier, Blount, Monroe and Polk: they may truly be said to be one continuous bed of limonite, at some points in immense masses like stratified or boulder rocks, and at others intermingled with the soil, but yielding large quantities of ore when subjected to the process of washing. The ores of this lead are all in the lower silurean, and usually lie in slates or between the Chilowee sandstones, and the dolomites of the Knox or Quebec periods, frequently intermingled or deposited between masses of the latter. In this position, it is found in a matrix of red or yellow clay, from the size of coarse sand to large boulders. These are the ores from which a large part of the iron of the United States was made in times past, and many beds are now worked in Pennsylvania, New York and Massachusetts, from which ore was taken a hundred years ago. The unsystematic and robbery-like character of obtaining the ore from many of the banks in Tennessee has greatly impaired their value, and in some cases apparently exhausted the supply of ore.

The limonite of this lead varies very greatly in quality, some being very free from any impunity, almost pure hydrated oxide of iron, but the greater part contains silica, alumina, phosphorus and sulphur in greater or less proportions, none to such an extent as to make it worthless. In some beds manganese prevails in such proportion as to make the manufacture of speigeleisen or ferro-manganese a possible source of profit. These deposits become more vast in size toward the southeast corner of the State, and the deposits on Tellico River and Lee's Creek, between the Little Tennessee and Hiwassee Rivers, challenge the admiration of the geologist and practical iron manufacturer.

At intervals in every ridge of the Knox dolomite formation beds of limonite are found, some of them appear to be of considerable extent, though but few of them have been opened. When opened, the quality of the ore has proven to be good. On the summit of the Walden's Ridge, at various points from Emory Gap to Careyville, beds of limonite are found, which are no doubt the result of local change of the carbonate of iron of the coal formation.

The largest body of limonites in the State is found in Middle Tennessee, in what has been usually called the Western Iron Belt. This vast deposit covers irregularly an area forty miles wide and extending entirely across the State from north to south.

It comprises the entire area of the counties of Wayne, Lawrence, Lewis, Perry, Hickman, Humphreys, Dickson, Houston, Montgomery, Stewart, Benton, Decatur, and part of Hardin.

The surface geology of this region belongs to the sub-carboniferous. It is in fact the counterpart of the Cumberland plateau of the east with the coal measure rocks swept away. The general elevation of the corresponding strata underlying the coal measure rocks is but a few feet more than that of Lawrence and Hickman counties. Almost at an identical level on each side of the Middle Tennessee basin occur the same characteristic rocks. The vast body of coal which once may have extended from Kentucky to Alabama is gone, but deposited in its underlying strata; from the slow action of ages, now remain immense bodies of iron ore, in quantity and quality hardly surpassed by any like area in the United States. In the injurious elements of phosphorus and sulphur these ores frequently go down to a mere trace, while they never rise to such an extent as to be in the slightest degree injurious for the very best grades of foundry irons.

The location of this ore has been stated to be an elevated plateau-land, yet it is well watered with many springs, and is also intersected with streams which flow west from the Middle Tennessee basin, being cut through on the north by the Cumberland river, while the western edge is intersected from north to south, the entire middle of the State, by the Tennessee river. All these streams cut down through the sub-carboniferous strata into the lower limestones, thus affording ample facility for obtaining flux in the manufacture of iron. The two great rivers named also afford cheap transportation to markets, while other means of transportation and access to this region is afforded by the Memphis branch of the Louisville and Nashville Railroad through Montgomery and Stewart counties, the Nashville and Northwestern through Dickson, Humphreys, and Benton, a narrow-gauge south from Dickson station into Hickman county, and the railroad from Columbia through Lawrence County to Florence, Alabama.

This ore has been almost entirely used for the manufacture of iron with charcoal, and there are now six furnaces operating in this region. All use charcoal for fuel; three are cold blast and three are hot blast. Notwithstanding its contiguity to reliable and cheap transportation, but little of this ore has ever been shipped to market in other States, nor to any coke furnace in this State. The connection by the Duck River Valley Road to the Nashville,

Chattanooga and St. Louis Railroad, already completed, gives an outlet for this ore directly to the coal, and it will then undoubtedly be shipped to furnaces on the line of that railroad or in Chattanooga.

Near Brownsport, in the County of Decatur, occurs a bed of limonite, probably extending over a very considerable area which is not referable to any of the formations in which that ore has elsewhere been found in Tennessee. The ore occurs stratified in layers and masses just beneath the black shale of the Hamilton period, Devonian age, and rests immediately on the Helderberg limestone. Immediately above the black shale is the siliceous group of the sub-carboniferous. A furnace was once run at this locality, and the stack and some of the houses are still in good order; the machinery is excellent. The ore at that point is in large quantity, and it appears to exist in the same geological position at about the same elevation over a considerable section of the surrounding country. The furnace, though thus eligibly located, was badly managed and has been idle for many years, being tied up in the meshes of the law. The nearness of this site and ore to the cheap transportation afforded by the Tennessee River should cause it to be utilized. The ore undoubtedly exists in great quantity over a large area of country—up and down the river.

Along the western foot of the Cumberland mountains and the Middle Tennessee basin, in a formation identical with that where the ores of Stewart, Montgomery, and Hickman are found, exist some beds of limonite, the extent of which has not been fully determined. They are found chiefly in the counties of White, Warren, Putnam, and Overton. At several points these beds appear to be of valuable extent, but no exploration has been made sufficient to test its quantity. The McMinnville branch of the Nashville and Chattanooga Railroad, now in course of extension to Sparta, will afford means of transportation and access to this region.

RED FOSSIL ORE.

The next ore to be considered, and though occupying a less area, probably not less extensive in quantity, belongs to the true hematite series, and is known to mineralogy and the manufacturer as the red fossil ore, but is known locally in Tennessee as Dyestone. It is almost entirely confined to East Tennessee, but

almost three-fourths of the pig-iron made in the State since 1870 was made from it.

The geological position of this ore is in the Clinton group of the Niagara period, below the black shale of the Dominion formation. In this State there are usually but thin strata intervening between the two; and while the latter is frequently found outcropping, it does not mean that the ore is found underneath it. This is the case all around the Middle Tennessee basin. But in East Tennessee, all along the western base of the Cumberland Mountains, from Chattanooga to Cumberland Gap, the two strata are found in close conjunction, and where one exists it is certain that the other is to be found in that vicinity, though it may be covered with drift. This ore is one of the most persistent strata of the Appalachian geological system. It is found in New York, bordering Lake Ontario, curving northward on the west and southward on the east, sinking there beneath the Hamilton shales and slates, rising again in Pennsylvania, and continuing thence in an almost unbroken outcrop southwest into the heart of the State of Alabama. The seams of ore in this State, however, are much thicker than in Pennsylvania; and besides the regular continuous seam at the foot of the Cumberland mountain, there is an independent seam almost as continuous, and at places much thicker, in what is called White Oak mountain, a high ridge entering the State from Georgia, in the county of James, and passing northward is continuous to Virginia, though the northern end, in the county of Hancock, is called Powell's mountain. This is the Montour ridge of Pennsylvania. This ridge in Pennsylvania is only twenty-seven miles long, and from it in 1846, Prof. Rogers states, that twenty furnaces, making sixty thousand tons of iron per annum were deriving their supply of ore, and in 1881 there were still nine large furnaces deriving their supply in whole or part from this same ridge. The White Oak mountain has a continuous length in East Tennessee of over one hundred miles.

This red fossil ore is also found in several detached ridges, from three to ten miles long, which lie parallel with the White Oak Mountain, at intervals, in a general southwest and northeast direction.

This ore is less variable in quality than the limonites, and the analysis of a specimen from one point in a leading range will usually be identical with that from another point ten, twenty or fifty miles distant. Below water level, the ore on the White Oak Moun-

tain, and at a certain depth the ore in the seam at the foot of the Cumberland Mountain, becomes poorer in iron and richer in lime. Hence, for the present, mining is stopped when this hard and poor ore is reached; the proper course would be to mix it, as done in Pennsylvania, with the richer soft ore from near the surface.

Two other bodies of this ore are of great extent in East Tennessee, but detached from the East Tennessee Valley proper. These are in Elk Fork Valley and Sequatchie Valley. The former is about 25 miles long and extends into Kentucky; the latter is about 60 miles long and extends into Alabama. Throughout the whole length of these valleys the red fossil ore appears, dipping slightly to the east. On the opposite side of the mountain, at its eastern base, along the foot of Walden's Ridge, the ore dips to the west, hence if the ore is continuous for the eight to ten miles of distance under the intervening carboniferous strata, the amount of iron ore thus stored away for future use is simply enormous. The ore on the east side of the mountain is three feet thick and in the valleys much thicker. Therefore, even if containing only 30 per cent. of iron, the amount of available ore the seam would yield, to capital invested in scientific mining, will equal if not surpass that of any known deposit of ore in the world.

At present the mode of mining this ore is to get ore on the cheapest plan possible, without the slightest reference to the future. In the seam at the foot of the mountain it occurs in a series of knobs, with short, narrow valleys between them. The ore is robbed from the knobs by rough tunnels as long as they think it pays, and then that knob is abandoned and another attacked. No mining is done below level of the little branches. In White Oak Mountain the dirt and shale is stripped with picks and shovels off the seam of ore until the wall of shale reaches a height or thickness of six or eight feet; the stripped ore is then taken out and the rest abandoned. In so-called worked-out leases near Ooltewah, are thousands of tons of ore which, by intelligent mining can now be gotten out as cheaply as has been any which had the thinner covering. The price of this ore in Chattanooga ranges from $2 to $2.50 per ton.

On the mountain seam are now located three furnaces, two at Rockwood and one at Oakdale. One furnace at Chattanooga derives its supply from the White Oak Mountain near Ooltowah, and South Pittsburg and Cowan furnaces get their ore from the

same mountain at Ooltewah and at Welker's, and some from Alabama.

The seams of this ore have very superior facilities for transportation. The Tennessee River runs parallel between the White Oak Mountain seam and that of Shin Bone Ridge, at the foot of the Cumberland Mountain. The latter has also the Cincinnati Southern Railway in a few hundred yards of it for nearly seventy miles. It is also accessible by the Knoxville and Ohio Road at Coal Creek and Careyville. The White Oak Mountain ore is cut through by the East Tennessee, Virginia and Georgia Railroad near Ooltewah and also by its Red Clay extension, and by the Knoxville and Ohio branch of that road from Knoxville to Kentucky near the town of Clinton. The Tennessee River also cuts it at Welker's, in Roane County. The Tennessee River also cuts through the Half Moon Island bed for a distance of ten miles. A system of cheap narrow-guage roads would bring to the river and railroads in short distances a large amount of ore now too far distant for hauling by teams.

The red fossil ore has not been found in any part of the Middle Tennessee region. In Overton County a hematite ore is found, locally called dyestone, but it is not the same as the East Tennessee dyestone, nor is it known to exist in large quantities. In the county of Wayne are three knobs which contain a large amount of hematite. Its geological position has not been exactly determined. The location is near Clifton, on the Tennessee River, and the ore is of good quality. It was once used in a furnace located near by, and some of it has been shipped off and used for paint.

The third most important ore, as respects quantity, in the State of Tennessee is the carbonate of iron of the Coal Measures. This is in England and Europe one of the chief ores from which iron is made. It is used to some extent in Ohio and Pennsylvania, but as yet not at all in Tennessee, though it is one of the most abundant and easily worked ores. There are points in the Tennessee coal field where it can be mined very cheaply. It is found in the State underlying the coal seam, worked at Coal Creek and at Careyville; at the latter place it is specially abundant. There are a number of layers of it in the Tennessee coal-field.

The least abundant, but most valuable iron ores of the State, are the ores found in the metamorphic rocks, from which Bessemer steel pig may be made. There are the hematite and the magnetic. These are found at intervals in the strata just edging

on the Potsdam sandstone and in the hornblendic gneiss of Carter and Johnson counties. The hematite has not been developed to any special extent; hence its quantity is not known. In Sullivan and Carter counties, in the foot-hills of the Holston Mountains, is found hematite ore of very compact structure. It has been used in forges and made good iron, but no sufficient exploration has ever been made to test its quality, though small pieces of it are scattered over a large area of country.

The magnetic ore exists in a limited area, but is in large quantity and of excellent quality. Little beyond explorations for the investment of capital, and a little digging for forges, has been done in this State, but beyond the North Carolina line, very extensive excavations have been made for the owners of the East Tennessee and Western North Carolina Railroad, and an immense amount of ore uncovered. That railroad is now completed from Johnson City to those mines in North Carolina, and must also eventually be the means of developing the ore of Carter County. In the eastern part of Johnson County, magnetic ore is also found, but transportation is so far distant that there is no likelihood of its development for many years.

The following are the iron furnaces in Tennessee using coke for fuel:

Oakdale Iron Company, Jerk P. O., Roane County, Tenn.; Hon. John G. Scott, President, Jerk P. O., (one stack).

Roane Iron Company, Rockwood P. O., Roane County, Tenn. (two stacks), H. S. Chamberlain, President, Chattanooga, Tenn

Chattanooga Iron Company, Chattanooga, Tenn., (one stack) Warren, Manager, Chattanooga Tenn.

Tennessee Coal, Iron and Railroad Company, South Pittsburg, Marion County (two stacks), J. C. Warner, President, Nashville, Tenn.

Tennessee Coal, Iron and Railroad Company, Cowan, Tenn. (one stack), J. C. Warner, President, Nashville, Tenn.

The combined product of these furnaces is about 400 tons of pig iron per day.

The furnaces now in operation in the State of Tennessee using charcoal for fuel are:

Napier Furnace Company, chief post-office, Lawrence County, Tenn.; J. E. R. Carpenter, President, Columbia, Tenn., makes cold-blast car-wheel irons.

Warner Furnace, Warner, Hickman County, Tenn.; J. C. Warner, President, Nashville, Tenn. Makes cold-blast car-

wheel iron now, but will probably be turned into coke or hot-blast charcoal.

Cumberland Furnace Company, Cumberland Furnace, Dickson County; J. P. Dromillard, President, Nashville, Tenn; hot-blast charcoal iron.

Cumberland Iron Works Company, Bear Spring Furnace, Stewart County; J. P. Dromillard, President, Nashville, Tenn. Makes cold-blast charcoal iron for car wheels.

The combined product of these furnaces is about 60 tons per day.

Clark Furnace in Stewart County was burned last winter, and has not yet been repaired. LaGrange Furnace, owned by the same company as Clark, was rebuilt on the new idea, Corendolt model, two years ago, but did not do well, and is not now in blast.

COPPER.

The part of the State of Tennessee which has produced copper ore in any quantity is all included in the county of Polk. Though small in area, it is capable of being a great source of wealth to the State. None of the mines are now in operation, but they were worked with profit for many years by Capt. J. E. Raht, and there is no good reason why they should not again become a source of profit to the operator, and of benefit to the people of that region.

These mines are located in a trough-like basin of metamorphic rocks, which is found in the extreme south-eastern corner of the State, it being the largest area of these rocks to be found in the State. The veins of ore are of the segregated character, and run with the strata to the northeast and southwest, the bodies of ore occurring usually in something of an echelon arrangement. Some of these veins have been explored to a depth of over 200 feet with a result showing that the veins are permanent. The ores found near the surface are red and black oxides, but at greater depths the ore is the yellow sulphuret.

This body of ore was discovered in 1843, but no regular systematic mining was done before 1850. In 1855, there were fourteen mines in operation, and over $1,000,000 worth of ore was shipped North. In 1858, a number of the companies united under the name of the Union Consolidated Copper Company. The war coming on soon after, no great results then occurred from the consolidation, but in 1866 operations were again commenced and that company shipped 600,000 pounds of ingot copper; and the other companies shipped 400,000 pounds. In 1878, the consolidated company entered into a lawsuit with Capt. Raht, which caused a stoppage of operations, and since that time nothing has been done except to keep the water pumped out of the East Tennessee Mine, and to protect the machinery from rust. The title to the Consolidated Company property is now clear, and there is no apparent reason why the mines should not be worked.

There are other mines of equal value to any belonging to the Consolidated Company, but that company owns the smelting works and until they commence operations, the other mines cannot be worked with profit, as the cost of hauling to the railroad is so great that it will not pay to ship the ores. There are also properties in this region entirely undeveloped.

If the railroad now in process of construction from Asheville, N. C., to Ducktown is continued on to Cleveland, Tenn., then coke may be obtained at reasonable cost, and hence the mines can be worked and ores smelted with fair certainty of good profit.

Copper ore has also been found in Monroe County, but not extensive development made.

GOLD.

Gold has been found in only one section of Tennessee, and that is within the ball range of mountains on Wolf Creek, in Cocke County, and on Coco Creek in Monroe County. The discovery of gold on Wolf Creek is recent, but placer washings have been worked on Coco Creek for many years, and are still continued in a small way. Many hundreds of dollars are gotten from there every year, of which no record is kept. Work was done here as early as 1831, and up to 1860, over $50,000 had been received at the U. S. Mint, known to have come from there. It is probable that fully twice that sum was the actual amount obtained.

So far, washing the gravel and dirt in and adjacent to the creeks has been the source of obtaining the gold, but active search is now being made for quartz veins, with prospects of success. There is without doubt much room for careful exploration in this region, and the systematic worker will find himself well repaid. The same characteristic formation exists in Unicoi, Greene, Carter and Johnson counties, and gold may also be found there. In view of the recent great discoveries in Virginia and Georgia, at points where gold was not supposed to exist, it may not be unreasonable to hope for valuable developments in Tennessee.

ZINC.

Within a few years past, the ores of this metal have become of some importance. In 1872, works for the manufacture of zinc oxide were erected at Mossy Creek, and mines opened near that place. After a few years of sickly existence, the company failed, chiefly from the fact that it was started without any actual paid in capital, and also neither the ores or the location were adapted to making oxide. If the manufacture of metal zinc had been the object, at least a temporary success might have been attained. In 1876, the Passaic Fire Company purchased mines on Powell's River in Union County, and commenced operations there on an extensive scale. They continued active operations to sometime in the spring of 1882. The mines are now abandoned on account of the large quantity of sulphurets which have come in—that company not using that character of zinc ore. During the time they continued operation, over $100,000 worth of carbonate of zinc was shipped from this mine. In 1879, Mr. Richberg, of Chicago, purchased some property on Straight Creek, near Clinch River, in the county of Claiborne and commenced mining for zinc ore; soon after he commenced the erection of works for the manufacture of metalic zinc at Clinton, where the Knoxville and Ohio Railroad crosses Clinch River, and completed them in 1881. Ore is used from the mines on Straight Creek, being floated down the river and also from Mossy Creek. The works are still running and have a capacity for making 3,000 pounds of metal zinc each 24 hours.

The lead of zinc ore which passes by Mossy Creek is continuous for about 65 miles in a northeast and southwest line, and in the sum total contains a large quantity of ore, though not of a quality very rich in metal. Its proximity to the East Tenn., Va. & Ga. Railroad, gives it a special importance, the outcropping of the ore being from only a few hundred yards to six miles from the line of the road for a distance of fifty miles. The ore of this lead has in it only a mere trace of lead.

The other lead of ore may be called the Powell's River lead. Its chief development is in the upper part of Union and lower part of Claiborne counties. This lead may be found to contain valuable ore at other points than those now worked, as in a northeast line in a similiar formation in Virginia good zinc ore has been discovered.

LEAD.

Lead ore is found at many places in the State of Tennessee, but is worked regularly at only one. Sporadic efforts at mining have been at one time or another attempted, but all for some reason were suspended without reaching any definite result. The question whether there is any lead ore of value in the State is as uncertain as ever.

In Henry county specimens have been found, but undoubtedly came from the North in the great glacial drift. In Clay county good specimens have been obtained from the sub-carboniferous limestone, and there are indications of a good vein. In East Tennessee lead is found in all the zinc mines of the Powell's River region, but only in a very small quantity, as stated, in the Mossy Creek ores. Lead ore is found in the counties of Bradley, McMinn, Monroe, Loudon, Roane, Jefferson, Grainger, Anderson, Campbell, Union, Claiborne, Greene, Washington, Johnson and Carter. In Bradley, Monroe, Loudon and Roane it is found associated with Baryta, and has been worked a little in each county in past years, and at some of the old diggings there are indications that with proper work a paying quantity of ore might be obtained. The ore does not exist in a regular vein, but rather in a series of lenticular deposits, occurring at regular intervals in a regular line along with the strata. These deposits, however, are continuous from the Georgia line through the counties of Bradley, McMinn, Monroe, Loudon, Jefferson, Blount and Greene. The lead ore in Roane is found in a similar position, but is to be found out of the general line of the deposits. In Carter county lead ore has been found in a location which gives the appearance of being a true vein running across the strata in an anticlinal, as a fault of the Potsdam sandstone. It is said also to appear in Johnson county. This ore is the only lead ore in Tennessee containing any appreciable amount of silver. The gangue is a siliceous breccia, and the ore is largely intermingled with supplementing iron. In the southwest corner of Claiborne county, near the line of Union county, is another locality where

lead is found appearing to be in a true vein. The gangue here is a siliceous breccia, but the lead ore is mixed with a sulphuret of zinc instead of sulphuret of iron, as in Carter county. It is a notable point that both these veins have the same direction north, 77° to 80° east. This locality, in Claiborne county, is a very remarkable one, and the vein may be traced across the county for many miles—the outcrop plainly showing in the bottom of Powell's River. This vein has been opened to a depth of thirty feet, and it is stated that the sulphuret of zinc grew less with the depth, and at the point where the shaft was stopped for want of proper pumping apparatus, the ore had concentrated into three or four veins of very pure galena traversing gangue—one of these said to be solidly six inches thick. For many years no work has been done at this place. Many years ago considerable work was done for lead in Bompas's Cove, and a small stamp mill erected. It is not known for what cause it was abandoned.

MANGANESE.

At various points in the Chilhowee Mountain and its attendant ranges are extensive beds of the oxide of manganese of the best quality. Except in Johnson county none of these have ever been worked for shipment, several hundred tons having been mined from a locality in Johnson county. Large quantities have also been found in Carter county.

MARBLE.

The Marble industry of Tennessee is the result of the increase of wealth in our nation and a consequent indulgence in the ornamental and beautiful, combined with the useful, rather than in the useful alone. The pure white marble which for centuries has ornamented the houses of the rich and given a ghastly look to the home of the dead, does not exist in Tennessee. The marbles of the State have been warmed into attractiveness and brilliancy by the commingling of one or more of the brighter colors with the pearly tints of the sea shell. It was this rare beauty and brilliancy which drew the attention of an artist architect to the marble of Hawkins county and caused it to be brought to the notice of the world in the Capitol at Washington. From this nucleus has originated a business spreading all over East Tennessee, employing a large number of workmen, adding greatly to the freight lists of our railroads and giving comfortable returns to all capital invested.

The development of this industry is one of the instances of how much may be done by individual enterprise in giving publicity and calling attention to a product, however insignificant it may appear. Orville Rice conceived the idea, and he and five friends had prepared and sent to the Washington Monument a block of the then unknown Hawkins county marble. It attracted the eye and pleased the taste of the architect of the new Capitol; tests proved it to be of good quality, a quarry was purchased and large quantities of it used in that building. And the same quarry is yet worked and furnishes an average of 10,000 cubic feet annually.

Nearly all the Tennessee marble belongs to the variegated class; some has a solid drab or dove color, and in other localities it is gray or pinkish gray. Of this class it has no rival east of the Rocky Mountains, except in a limited area of the State of Vermont. The sienna and variegated marbles of Italy have been supplanted by the more brilliant stone from the land whose people delight to call it the Switzerland of America.

The geological position of this marble is in the upper part of the Lower Silurean, one of the strata of the group of Trenton

limestones, being the next to the lowest member of that series. In the county of Henry and also in Benton, are found local beds of marble which are in the Niagara formation, but they, while of truly handsome appearance, do not have the brilliancy of the East Tennessee marbles. In Lincoln county a variety of shell marble is found in the Trenton limestones, which very much resembles the true variegated species and may afford handsome blocks of commercial size, but by far the greatest body of marble is found in East Tennessee, and from that section alone shipments from the State have been made.

The original opening of the Tennessee marble was in Hawkins county, and until within a few years past there was its greatest development. Now the largest business is done in Knox county, and there are quarries in Hawkins, Knox, Hamblen, Jefferson, Loudon, Monroe and Bradley. For the year ending June 30th, 1871, the amount of marble shipped over the East Tennessee, Virginia & Georgia Railroad was 1,262,422 pounds, and of this Hawkins county furnished 1,199,943 pounds. For the year ending June 30th, 1881, the amount shipped over the same railroad was 14,312,467 pounds, of which only 3,651,000 pounds was from Hawkins county, and more than 10,000,000 pounds from Knox county. The total may be roughly estimated at 80,000 cubic feet, which, at an average price of $3 per cubic foot, would be the sum of $240,000, now being brought into East Tennessee for an article lately valueless, and the demand for which is steadily increasing.

The marble beds of Hawkins county are in a narrow ridge running northeast and southwest with the general line of all East Tennessee strata, the outcropping being usually on the western side of the ridge. This ridge commences about six miles north of Rogersville and ends abruptly about eight miles southeast of that place, being apparently isolated, though careful examination proves that its strata connects with Clinch Mountain on the north and continues in the strata to the south, though losing for some distance its elevated ridge-like position above the general face of the country. In this ridge are nine quarries, of which seven are vigorously worked. Four of them ship their marble through Rogersville, and three haul by wagon to Whitesburg and ship from that point. The railroad from Rogersville connects with the main East Tennessee, Virginia & Georgia Railroad.

The amount of marble in Hawkins county is very great, and therein are found variegated marbles of more brilliancy than

in any other section. The business has not increased in the same proportion as in Knox county because of the poor facilities for transportation. If the railroad to Rogersville were extended over to the marble valley, the amount of handsome variegated marble shipped would be largely increased, the cost much decreased, and grades of marble not now quarried would come into use.

The quarries now in operation are: Prince & Co., Chestnut & Chestnut, John Harun & Co., Chestnut & Fulkerson, who ship from Rogersville, and Capt Jas. White, the old Dougherty quarry, Joseph Stamps, the Baltimore Marble Company, who haul to Whitesburg, on the East Tennessee, Virginia & Georgia Railroad.

For the year ending June 30th, 1881, there was shipped from such of these quarries as were operating then 3,551,138 pounds of marble, or about 20,000 cubic feet. All of this was of the finest grade of variegated marble for ornamental purposes only, and can certainly be estimated as worth $4 per cubic foot on the cars. Some sold as high as $7, thus giving a gross product of $80,000, while the actual capital invested is very small. Employment is given to about one hundred men.

The business is not pushed by any one of the quarries to the extent it might be on account of the difficulty of transportation heretofore alluded to. Machinery is little used. In the Hasson quarry is a channeler and a steam drill. Mr. Stamps has two steam drills.

The chief markets of this marble are Philadelphia, Baltimore, New York, Boston and other cities. It is seldom used for outside work, but from selected blocks very handsome and durable doorsteps and banisters have been made, which stood the wear of weather and time equally with any stone. An instance of this is seen at the house of Mr. Hasson in Rogersville.

In Hamblen county Mr. M. Carriger, of Morristown, produces some marbles of good quality, chiefly for local use.

Jefferson county contains a large quantity of marble, from the beds of which beautiful specimens have been obtained, but no extensive quarrying has yet been done.

The largest business now carried on in quarrying and shipping marble is in Knox county. The marble of Knox is more varied in its quality and the uses to which it is adapted than that of Hawkins county, and the facilities of transportation are much better. The quality varies from the plain gray colored building stone to

the most beautiful pink and variegated ornamental marble. The gray or whitish drab with pink tinge, has no superior as a building stone. It has been used in the United States Custom House at Knoxville, at Memphis, and the State House at Albany, New York, and in many other private and public buildings in other cities. For durability and resistance to moisture it has no superior in the world. An analysis gives its contents of carbonate of lime at 98.436, and tests show its capacity to bear 12,000 pounds pressure to the square inch. The first quarry of this extensively opened, was by the United States Government, and is located at the junction of the French Broad and Tennessee Rivers, and is now extensively operated by the Knoxville Marble Company, of which General Patrick, of St. Louis, is President, and Geo. W. Ross, of Knoxville, Secretary and Treasurer. This marble has been sent to all parts of this country, from San Francisco to New York City. The interior of the Governor's room in the new Capitol at Albany is built of it, trimmed with Mexican onyx. When polished it has a rich mottled pink color, but bush hammered and rough for building purposes, has the appearance of being a white marble.

There are three marble leads in Knox county now worked; two, however, are undoubtedly merely the north and south sides of a synclinal trough, hence, really the same beds. These two are south of the river. The third is north of the city and seems to have only one outcrop, like the marble of Hawkins county. Near Concord extensive quarries have been opened, which appear to be in the northern outcrop of the synclinal basin heretofore alluded to.

The total capital invested in the marble business in Knox county is about $250,000, and fully three hundred men are employed. The two largest quarries are the Knoxville Marble Company and Morgan & Williams. These are the only ones using machinery. The former has five steam drills, seven steam derricks, and runs a sawing mill with two gangs of saws. Williams & Morgan have three steam channeling machines and a mill with one gang of saws, but use only the horse derricks. All the concerns use the ordinary derricks. In Knoxville, Beach & Co. have a mill for sawing and machinery for polishing marble.

The following is a list of the quarries in Knox county: Knoxville Marble Company, Morgan & Williams, Jno. M. Ross, Craig & McMullen, T. P. Thomas & Co., R. H. Armstrong &

Co., H. H. Brown & Co., Harvey & Smith, Franklin Marble Company, Beach & Co., C. B. Ross & Co.

The demand for the marble is constantly increasing, and there is still room for capital invested in quarries located near to transportation.

In Loudon county are beds of good marble, but none of them are now worked.

In Monroe, Reynolds, Huling & Co. for some time worked a bed on Tellico River, but it is now abandoned.

In McMinn county, near Athens, marble beds of good quality exist, but have not been worked for several years.

In Bradley county, on the Hiawassee River, above Charleston, exist extensive beds of excellent marble, owned by Capt. Jno. S. Crary, at which machinery has lately been erected and preparations made for work on a large scale. South of Cleveland, near the Georgia line is the quarry of Patrick & Smith, from which a beautiful grade of pink marble is obtained. They have two steam drills.

The marble in Henry and Benton counties, West Tennessee, has been mentioned. It does not have the brilliancy of the East Tennessee marbles, but is, nevertheless, handsome and interesting, from the number of crinoid stems it contains. In this respect differing from the Lower Silurian marbles, where a crinoid is only occasional. Its location in Benton is on Birdsing Creek, in Henry on Big Sandy River, both places being convenient to the Tennessee River, and the latter very easy of access to the Memphis branch of the Louisville & Nashvile Railroad. Considerable stone from the quarry on Big Sandy, near Springville, has been taken out and used for foundations, caps, steps and for monuments. As seen in Paris, it seems to have good qualities for resisting wear from exposure to the weather.

Building Stones, Roofing Slates, Clays, and Glass Sand.

Tennessee is well supplied with building stones. In the extreme east, near the North Carolina line, a variety of granite is to be found; there are also marbles of every variety of color and unsurpassed in quality. The Cumberland Mountains afford an abundance of light colored sand-stones, and the Niagara ridges an excellent brown sandstone. Just below the mountain limestone is an oolitic limestone of very excellent quality. This stone is found at various points on the Cincinnati Southern Railway, near the terminal, on the Nashville, Chattanooga & St. Louis, in Giles county, and on the Nashville & Decatur Railroad. It is very white, works easily and stands exposure to the weather very well. It is geologically the same as the oolitic limestone of Bowling Green, Kentucky, but, unlike that stone, does not contain any petroleum, and hence, does not turn dark on exposure as a great deal of that from Bowling Green does.

Everywhere throughout the State except in the extreme of the western division, the various limestones are accessible for foundations and the coarser classes of buildings. In the western division in some sections an iron sandstone is found which is extensively used for foundations and chimneys. The limestone marble of Henry county is a valuable building stone, and from its location could be easily transported to sections where no stone exists. Large quantities of stone are shipped from Clarksville to the towns of the western division. In the middle basin the prevalence of the easily worked Trenton and Nashville limestones makes building stone both abundant and cheap, and with care in selection, much of excellent quality and uniformity of color can be obtained. The Capitol at Nashville is built of this stone, but, unfortunately, has in it many blocks of inferior quality. On the line of the Northwestern Railroad, at White Bluff and other points, a cream colored sandstone is found, which is soft and easily dressed when just taken out of the ground, but rapidly becomes hard on exposure, and is a very durable stone.

The gray and pinkish gray marble of Knoxville and that vicinity has no superior as a building stone. The Custom Houses at Knoxville and Memphis are built of it and much of it has been used in other public buildings. It has greater specific gravity than the best granites, and as proven by tests published in the New York Underwriter, it is a better stone for resisting the combined action of fire and water than any granite or sandstone.

The brown stone of the Niagara ridges, Clinton formation, has not been much used as a building stone, but where so used has proven very good. It is abundant in East Tennessee and is convenient to transportation, both by rail and water.

Roofing slate is found in several counties along the eastern border of the State, but has not yet been worked for shipment. The quality is good and the various colors are also to be found. As yet transportation for it is uncertain, but if that existing in the Wolf Creek country should prove to be of good quality, the North Carolina branch of the East Tennessee, Virginia & Georgia Railroad will now furnish a reliable route to the North, East and West.

No first-class fire clay has yet been worked in the State. Many trials have been made of clays convenient to transportation, but none of the best quality. A good article exists in Putnam county, but whether of sufficient quantity to be of value beyond local use has not been ascertained.

Potter's clay is abundant, and the best of ware can be made from that found in Carroll, Henry and McNairy counties. These have all been opened to sufficient extent to show that they exist in large quantity and have all been tested as to quality. The beds are located near to transportation on great leading lines, hence are available for shipment abroad, or afford facilities for transporting their ware if manufactured in the vicinity of the beds.

Good glass sand is found at several points in the State, especially in that part west of the Tennessee River, but so far none has been shipped. A deposit near Knoxville was opened at that place in making glass. Good bed flint sand is abundant.

Lime burning is carried on at various points in the State and that article is furnished of as good quality and at as low average price as in any section of the Union.

Lithographic stone has been found in McMinn, Jefferson, Clay and Overton counties. That in McMinn was worked a

while by some parties from Cincinnati; now the only quarry worked is in Clay county, which is operated by Mr. N. O. Geoghegan, of Louisville, Ky. It is said to be of very excellent quality and took the first premium at the Atlanta Exposition in 1881.

Hydraulic limestone is found at various points in the State, and has been burned and ground for cement. Probably the most available place for this manufacture is near Clifton, Wayne county, immediately on the Tennessee River. A manufactory was established here just before the war and the cement made is said to have been of the best quality. The locality is certainly convenient to cheap transportation.

Sulphate of baryta, or "barytes," as it it is commonly called, is very abundant in Tennessee. It can be found throughout the length of Chilhowee Mountain, and at various points in the dolomite ridges of the East Tennessee valley. It is associated with lead ore in Roane, Bradley and Loudon counties. It has been mined at Whetwell, on the North Carolina branch of the East Tennessee, Virginia & Georgia Railroad, and near Greeneville, on the main line, and a considerable quantity shipped therefrom, but the work is now suspended. It has no legitimate use in the arts or manufactures, but is used entirely as an adulterant of various white substances.

PETROLEUM.

Considerable search has been made in Tennessee for Petroleum; at some points with success, at others the result was utter failure. All along the western rim of the Cumberland Table Lands and circling the Middle Tennessee Basin, on all sides is a belt of country, the geological basin of which is such as to warrant that there Petroleum may be found. At various localities in this belt petroleum oozes through cracks in the strata, but these are by no means reliable indications of where a well should be bored as the petroleum may have come up between layers of rock from a reservoir far distant. Wells were many years ago sunk in Overton and Fentress counties and large quantities of oil obtained, but they have long since been abandoned for want of proper transportation. More than 10,000 barrels of oil were obtained from these wells. Several wells were bored in Dickson county and about 500 barrels of oil obtained. From the record of the strata through which the boring was made it appears that a good quantity of oil might be obtained in that region.

TIMBER.

Few States of the Union have a larger proportionate area of valuable timber lands than Tennessee. Of her twenty-six millions of acres of territory, only about nine millions are in cultivation, leaving seventeen million acres, nearly all of which is more or less densely covered with valuable timber. If we deduct one million acres for unproductive portions, and I am satisfied that this is more than the just proportion, we will still have sixteen millions of acres of timber land, much of which has been but slightly, if at all, disturbed by the woodman's axe. If, in connection with this vast area, we consider the great variety of our valuable woods, we cannot fail to see that in her forests alone Tennessee possesses an element of wealth which is by no means contemptible. In the past history of our State, outside of a few localities, comparatively little value has been attached to the timber contained in our forests, but within the last few years it has rapidly appreciated in value, and is fast becoming a source of very considerable revenue to the people of Tennessee.

In the number of species and varieties of trees, Tennessee is probably not surpassed by any State in the Union.

I am not aware that there has ever been made a full catalogue of all the trees of our forests, but the following may be mentioned: Oaks of many varieties, including the red oak, black oak, white oak, post oak, water oak, [illegible] oak, chestnut oak, black jack oak, &c., yellow and [illegible] pine, [illegible] and white pine, black and white walnut, hard and soft maple, [illegible] and black [illegible], white and blue ash, [illegible] cedar, dogwood, buckeye, [illegible], wild cherry, elms of several varieties, [illegible] and honey locust, hickory [illegible], [illegible] persimmon, [illegible] gum, cucumber, black and red [illegible], sassafras, [illegible], catalpa, willow, [illegible] &c. It is unnecessary specifically to describe [illegible] are generally well known.

Of these the [illegible]. The pines are

abundant in many portions of East Tennessee, in the southwestern part of Middle Tennessee, and in the southeastern part of West Tennessee. Poplar is abundant in portions of East Tennessee, in the hilly and undulating parts of Middle Tennessee, and is very generally diffused in West Tennessee. Hemlock is confined to the mountains of East Tennessee. The maples grow in all sections of the State. Ash and beech are found in every division. Cottonwood is generally confined to the river valleys, cypress to the marshy lands in West Tennessee, hickory almost everywhere, sweet gum most abundant in the valleys of Middle and West Tennessee; black walnut within reach of transportation is becoming scarce. The chestnut oak, so valuable for its bark for tanning purposes, is abundant on the high lands of Middle Tennessee and those bordering the Tennessee River on the west. Red cedar is most abundant in some portions of Middle Tennessee, though found also in East Tennessee. For white oak, poplar and sweet gum, three very valuable timbers, portions of West Tennessee are perhaps unsurpassed by any localities in the world. In the belt of counties lying along the western base of the Cumberland Mountains there is much valuable timber which has never been drawn upon except for local use. The same is true in all parts of the State where transportation has not been convenient and cheap. These timbers are now being eagerly sought after by Northern manufacturers and shippers. The counties bordering on the Mississippi afford perhaps the grandest supply of poplar of any similar area in the world. In a single county (Obion) there were a short time since as many as fifty-five mills in operation, with an aggregate production of about a million feet of lumber per day.

LAKES, BAYOUS, RIVERS AND CREEKS.

In describing the Mississippi bottom I spoke of the lakes, bayous and swamps to be found in its limits. There are a number of these which are not of sufficient importance to demand special description. The most important and the only one which I shall describe is Reelfoot Lake. This is a body of water about eighteen miles in length and from one to three miles in width. It lies within the Mississippi bottom, in the northern part of the State and reaching a short distance into Kentucky. The water over much of this area is shallow, though in some places it possesses great depth. Fish of many species are found in the lake and wild fowl in countless numbers make it a winter resort. Reelfoot Lake is said to have been formed by the earthquakes of 1811. The bed of Reelfoot Creek is said to have been filled up so as to interrupt the outflow of its waters while the area which now forms the bed of the lake is supposed to have sunk several feet below its former level. The lake is a great place of resort for purposes of shooting and fishing during the later fall and winter months. There are numerous other lakes in the "bottom," but they are smaller and of minor importance.

Tennessee has three great rivers, which, with their tributaries, constitute three river systems. The first of these is the Mississippi, which washes the western boundary of the State from the north to the south, giving in its tortuous course several hundred miles of river front, and affording unlimited means for transportation. The principal tributaries of the Mississippi in Tennessee are the Obion, Forked Deer and Big Hatchee. These streams are at some seasons navigable for small steamers for some distance from their mouths and are the avenues of considerable commerce. Their general direction is from the southeast to the northwest. The smaller streams of this system will be noticed in speaking of the counties of West Tennessee.

Next in point of importance is the Tennessee River, which rises in northwestern Virginia. Under the name of *Holston* it enters Tennessee and forms a junction with the *Clinch* near Kingston, in Roane county, where it takes the name of the Ten-

nessee. Before reaching Kingston it receives the waters of the Watauga, the Nola Chucky, the French Broad, the Little Tennessee and other streams which have their ultimate sources in the mountains of North Carolina. The Clinch, which also rises in Virginia, receives the waters of a number of confluents, the most important of which is Powell's River. Pursuing a general southwestern course, it receives the waters of the Ocoee and Hiwassee and reaches Chattanooga, where, cutting through Walden's Ridge, it reaches the Sequatchee Valley, receives the waters of Sequatchee River and soon crosses the State line into Alabama. In its course through Alabama its most important confluent is Elk River, which comes from Tennessee. Reaching the Mississippi border and forming for a short distance the boundary between Alabama and Mississippi, it again enters Tennessee and pursues a general northerly course entirely across the State into Kentucky where it falls into the Ohio at Paducah. In this latter course through Tennessee its most important tributaries are Duck River from the east, and Big Sandy from the west. From the head waters of the Holston this stream is 1,100 miles long, and has a drainage area of 40,000 square miles, embracing parts of seven States.

From Paducah to the Alabama State line Tennessee River is navigable for steamers at all stages. There is a series of obstructions or shoals in Alabama which prevent the passage of boats, except during a favorable stage of water. A canal is now being constructed around these shoals, supported by appropriations made by Congress. This, with the other improvements which are being made above this point, it is hoped will soon give uninterrupted navigation to Kingston for the entire year. In a good stage of water boats can ascend to Knoxville, and even pass up some of the larger tributaries beyond that city.

The Cumberland River, which, with its tributaries, constitutes the third system, takes its rise in the southeastern part of Kentucky. It enters Tennessee in Clay County, and pursues a very tortuous, though generally southwest, course to Carthage, in Smith County; thence more westwardly, and again southwest to Nashville. From Nashville to Clarksville, its general course is northwest. At Clarksville, it again turns to the southwest, but once more turns northwest, and crossing the State line, re-enters Kentucky, and finally pours its waters into the Ohio at Smithland. In its course through Tennessee, its principal tributaries are, from the eastern and southern side, the Obed, Roaring,

Caney Fork and Harpeth rivers. From the north, the confluents are less important, the chief one being Red River. The Cumberland is about 650 miles in length. Of this distance, nearly 600 miles are, or can be made navigable. Improvements are now in progress which it is hoped will remove some of the difficulties and add immensely to the already great value of this stream as a medium for the transportation of the varied and valuable products of the section through which it flows.

Besides these principal rivers, are many smaller rivers and creeks, which traverse every section of the State, affording, in many cases navigation for keel and flat boats, and furnishing water-power sufficient to drive a vast amount of machinery. On these smaller streams are numerous cataracts, some of which possess great beauty. The great majority of these smaller streams are fed by perennial springs, and consequently the streams are unfailing.

RAILROADS.

The East Tennessee, Virginia & Georgia Railroad system commences at Bristol, on the Virginia line, where it connects with the Norfolk & Western to Richmond and Norfolk, Va., and north to Washington City and New York. From Bristol the main line extends through Knoxville and Cleveland to Chattanooga, from Cleveland, Tenn., via Dalton, and Rome, Ga., and Selma, Ala., to Meridian, Miss., and from Rome Ga., via Atlanta and Macon to the sea at Brunswick, Ga. It also has the Memphis & Charleston R. R. from Chattanooga to Memphis leased, and has branches from Knoxville to the Kentucky line, connecting with the Louisville & Nashville to Louisville, and the Kentucky Central to Cincinnati; also a branch from Morristown to Paint Rock, on the North Carolina line, where it connects with the Western North Carolina Railroad, which extends through North Carolina to the sea at Wilmington, N. C., and Norfolk, Va., and by connecting roads in South Carolina, also reaches Charleston and Columbia. The total mileage directly under its control is 1,432 miles, but it is virtually under the same management as the Norfolk & Western and the Shenandoah Valley roads in Virginia, thus making a total of 2,170 miles; and by a contract with the Louisville & Nashville, the East Tennessee, Virginia & Georgia cars go into New Orleans over the track of that road. Thus there is a continuous track laid for the same car from Washington to New Orleans, virtually under the same control.

The length of the line of this road from Bristol to Chattanooga is 242 miles, from Cleveland to Dalton 30 miles, about 10 of it in Tennessee, and from Ooltewah to Red Clay 12 miles—all in Tennessee. The Ohio Division, from Knoxville to the Kentucky line, is 58 miles long, and the North Carolina Division, from Morristown to Paint Rock, is 45 miles in length.

The main line commences at Bristol, in the county of Sullivan, and passes southwest from that county through one corner of Carter, the center of Washington, touching the towns of Jonesboro, Telfords and Limestone, diagonally through the northern part of Greene, touching Fullens, Home, Greeneville and Mid-

way, directly through the county of Hamblen, touching Rogersville Junction, where it connects with a road to Rogersville, and the center of the fertile county of Hawkins, the great marble producing region, thence through the northern part of Jefferson, touching Talbott's, Mossy Creek, New Market, Strawberry Plains into the heart of Knox and to Knoxville, also touching McMillan's, Ebenezer and Concord, thence through the county of Loudon, the edge of Monroe, of McMinn, to Cleveland in Bradley, and through James to Chattanooga, in Hamilton county, passing through the flourishing towns of Loudon, Sweetwater, Athens, Riceville, Charleston and Ooltewah, and the manufacturing village of Lenoir. The Ohio Division passes through Anderson and Campbell counties and the towns of Powell, Haskell, Clinton, Coal Creek and Careyville—the last two mining towns. The North Carolina Division passes through Witts, White Pine, Leadvale, Newport, Whitwell and Wolf Creek.

The principal offices of this company are at Knoxville, Tenn. The officers are: President, Samuel Thomas, New York City; First Vice President, C. M. McGhee, Knoxville; Second Vice President and General Manager, Henry Fink; General Superintendent, Jno. F. O'Brien, Knoxville; Superintendent, Main Line, F. K. Huger, Knoxville; J. R. Ogden, General Passenger and Freight Agent.

Louisville, Nashville and Great Southern. This road originates in Louisville, Ky., but its main line terminates in the State, and by its branches, leased and controlled lines, it extends across and over a large part of Tennessee. The main line is from Louisville to Nashville, 185 miles, with a branch from Bowling Green, Ky., to Memphis. But the system of roads it operates extends to Mobile, Pensacola and New Orleans, and it controls, but does not directly operate to Chattanooga, Atlanta and Savannah.

The entire line of road under its operation in the State is 377 miles, and consists of the main line from the Kentucky boundary to Nashville, the Nashville and Decatur roads to Alabama; the Nashville and Florence, and the Memphis branch from Guthrie to Memphis. The main line enters the State in Sumner County, and thence into Davidson to Nashville, passing through the thriving town of Gallatin. The Memphis branch enters the State in the county of Montgomery, and passing through its center, and the beautiful and flourishing city of

Clarksville, touches a corner of Stewart; passes through the northern part of Houston and Benton, goes directly through Henry and the town of Paris, its county seat; through the northwest corner of Carroll, the southeast corner of Gibson and Crockett, through the center of Haywood and the city of Brownsville; through a corner of Fayette and through Shelby to Memphis. At McKenzie, it connects with the Nashville, Chattanooga and St. Louis Railroad; at Milan with the Chicago, St. Louis and New Orleans, and at Humboldt with the Mobile and Ohio Railroad. At Guthrie, it connects with the St. Louis and Southeastern Road, on the north to Evansville, and on the south for Nashville. It passes through the thriving towns of Paris, McKenzie, Milan, Humboldt, Gadsden, Bells, Stanton, Mason and Galloway. The St. Louis and Southeastern Road enters the State at Guthrie, and passes through the county of Robertson and its county seat, Springfield, into Davidson to Nashville. The Nashville and Decatur road passes from Davidson County through the center of the counties of Williamson, Maury and Giles into Alabama, touching the towns of Franklin, Columbia and Pulaski, and traversing the finest agricultural region of the State. The Nashville and Florence Road extends from Columbia to Sandy Hook Station, at the foot of Highland Rim, about twenty miles, and is being continued into Lawrence County.

The officers of this road are, President, C. C. Baldwin, New York City; 1st Vice-President, E. P. Alexander, Louisville; 2d Vice-President, G. A. Washington, Nashville; General Manager, F. DeFuniak, Louisville; General Superintendent and Master Transportation, D. T. C. Rowland, Louisville; General Passenger Agent, C. P. Atmore, Louisville; Superintendent Nashville and Decatur Division, J. Geddes, Nashville.

Nashville, Chattanooga and St. Louis extends from Chattanooga to Hickman, Ky. The entire length of the line is 321 miles. For the purpose of getting a good passage through the Cumberland Mountain, this line deflects out a general southwest course from Chattanooga, and runs for a short distance in the State of Alabama, and to reach the terminus on the Mississippi, a few miles are in Kentucky. At Hickman, it connects with the Iron Mountain Road to St. Louis; at Union City, with the Mobile and Ohio Road; at Paducah Junction, with the Chesapeake, Ohio and Southwestern; at Martin with the Chicago, St. Louis and New Orleans Road; at McKenzie

with the Memphis branch of the Louisville & Nashville; at Nashville with the Louisville & Nashville system north and south and at Chattanooga with the numerous roads converging at that city from all sections of the country. The company controls and operates the following branches: Jasper Branch, from Bridgeport to South Pittsburg, Jasper, Victoria and other points in Sequatchee Valley, 22 miles; Fayetteville Branch from Decherd to Fayetteville, 40 miles; there connecting with the Duck River narrow gauge to Columbia; Shelbyville Branch, from Wartrace to Shelbyville, eight miles; McMinnville Branch, from Tullahoma to Rock Island on Caney Fork River, 35 miles, and being rapidly completed to Sparta; the Tennessee and Pacific from Nashville to Lebanon, 31 miles, and the Nashville and Tuscaloosa from Dickson to Centerville in Hickman County, 32 miles. This road is a narrow gauge, and is being steadily continued southward.

This road passes through more counties than any other road in the State, and is essentially a Tennessee road. Though nominally controlled by the Louisville & Nashville, its actual management is entirely distinct. The main line and branches pass through from Chattanooga and Hamilton county, and the following counties: Marion, Franklin, Lincoln, Coffee, Bedford, Warren, Rutherford, Davidson, Wilson, Cheatham, Dickson, Hickman, Humphreys, Benton, Carroll, Weakly and Obion.

Along its lines, the following are the principal towns and cities: Chattanooga, Jasper, Manchester, Fayetteville, Tullahoma, McMinnville, Shelbyville, Murfreesboro, McMinn, Dickson, Centerville, Waverly, Camden, Huntingdon, McKenzie, Dresden and Union City.

The principal officers of this company are located at Nashville. Its officers are: President, Jas. D. Porter; General Manager, F. DeFuniak; General Superintendent, J. W. Thomas; General Freight Agent, Geo. R. Knox; General Passenger Agent, W. L. Danley; Agent of Chattanooga, J. L. McCallum.

The Memphis & Charleston Railroad extends by its own line from Memphis to Stevenson, from whence, by lease, it runs into Chattanooga over the line of the Nashville, Chattanooga & St. Louis Railroad. It is now consolidated with the East Tennessee, Virginia & Georgia Railroad. This road has a branch from Moscow to Somerville. From Memphis and Shelby county, it passes through Fayette, Hardeman and McNairy counties into

Alabama and does not again reach Tennessee until after its union with the N. C. & St. L. R. R.

R. B. Peagram, jr., Memphis, is Superintendent of this division of the East Tennessee Virginia & Georgia system.

Chicago, St. Louis & New Orleans Railroad enters the State from Kentucky in Obion county, passes through Weakly, Gibson, Madison, and Hardeman into Mississippi. On the north it extends to St. Louis and Chicago, and on the south to New Orleans. The length of the line in this State is 112 miles. It connects at Martin with the Nashville, Chattanooga & St. Louis road, at Milan with the Memphis branch of the Louisville & Nashville, at Jackson with the Mobile & Ohio, and at Grand Junction with the Memphis & Charleston.

The principal towns through which it passes in Tennessee are Martin, Milan, Jackson and Bolivar. Its principal offices are located at New Orleans. Its principal officers are: E. C. Clark, Vice President and General Manager; D. B. Morey, General Freight Agent, and J. W. Coleman, General Passenger and Ticket Agent.

The Mobile & Ohio Railroad extends from Mobile to Columbus, Ky., where it connects to St. Louis by the Iron Mountain road, and to Chicago by the Chicago, St. Louis & New Orleans. It enters the State from Kentucky in Obion county, near Union City, and passes through Gibson, Madison and McNairy into Mississippi, having a length in this State of 112 miles. It connects at Union City with the Nashville, Chattanooga & St. Louis; at Rives with the Chesapeake, Ohio & Southwestern; at Humboldt with the Memphis branch of the Louisville & Nashville; at Jackson with the Chicago, St. Louis & New Orleans, and at Corinth, Miss., with the Memphis & Charleston.

The principal offices are at Mobile, and the officers are: W. Butler Duncan, President; A. L. Rives, Vice President and General Manager, and C. J. Walker, General Freight and Passenger Agent.

Chesapeake, Ohio & Southwestern Railroad extends from Paducah, Ky., to Memphis, but is not fully completed. The complete line will be from Paducah to Newbern, Tenn., [illegible] miles, of which [illegible] in Tennessee is on the Memphis end. It is completed from Memphis to Covington, miles. It connects at Paducah with steamers on the Ohio and Tennessee Rivers, and with the Elizabethtown & Paducah road for Louisville and Cincinnati; at Fulton with the Chicago, St. Louis & New Orleans road; at Pa-

ducah Junction with the Nashville, Chattanooga & St. Louis, and at Rives with the Mobile & Ohio road.

The officers are: C. P. Huntington, President; P. Gore, Superintendent; Robert Weeks, General Manager.

Cincinnati, New Orleans, Texas and Pacific Railroad extends from Cincinnati to Vicksburg, Miss., and thence to Shreveport, La., by road being constructed; also from Meridian, Miss., to New Orleans by road now being constructed. From Cincinnati to Monroe, La., to which point the road is now completed, the distance is 843 miles. The same management is also constructing a road from Eutaw, Ala., to Memphis. The part of the line in this State was formerly known as the Cincinnati Southern Railway, and is consolidated by lease with the Alabama Great Southern. The length of track in Tennessee is 168 miles. It comes into the State from Kentucky in the county of Scott, passes through that county, Morgan, Roane, Rhea and Hamilton to Chattanooga; thence by the Alabama Great Southern it passes into Alabama. It will probably be the great coal and mineral road of the State and of the South. It connects at Oakdale Junction with the Walden's Ridge Railroad to Oakdale Furnace and Winter's Gap; at Rockwood with the Roane County Narrow-Gauge to the Tennessee River; at Spring City with the Sequatchee Valley Railroad, and at Chattanooga with the numerous railroad lines centering at that city.

The principal office is at Cincinnati. The officers are: President, Theodore Cook; Vice-President and General Manager, John Scott; Superintendent, Cecil Fleming; General Passenger Agent, C. P. Wilson.

The Duck River Valley Railroad is a narrow-gauge, extending from Columbia to Fayetteville, at which point it connects with the Fayetteville Branch of the Nashville, Chattanooga and St. Louis Road. Superintendent, George Chilhowee.

The Rogersville and Jefferson Railroad extends from Rogersville Junction, on the East Tennessee, Virginia and Georgia Road, to Rogersville, in Hawkins County, 15 miles. President, H. M. Aiken, Knoxville. Business office at Rogersville.

The East Tennessee and Western North Carolina Railroad is a narrow-gauge road, extending from Johnson City, on the East Tennessee, Virginia and Georgia Road, forty-five miles to the Cranberry Iron Mines in North Carolina. It is almost wholly in the county of Carter. The officers are: A. Pardee, Jr., Presi-

dent, Philadelphia, Pa.; T. E. Matson, Chief Engineer and Superintendent, Elizabethton, Carter County, Tenn.

The Walden's Ridge Railroad is a narrow-gauge; extends from Oakdale Junction, on the Cincinnati Southern Road, near Emery Gap, over the leased line of the Oakdale and Cumberland Mountain Road, to Oakdale Furnace, and thence, by its own line, to Winter's Gap Coal Mines. It is a narrow-gauge, but the road bed is graded for a wide track. It is in the counties of Morgan and Roane. The principal office is at Jenks, Roane County, Tenn. The officers are: President, Jno. G. Scott; Secretary and Treasurer, B. V. Jenks.

The Roane County Narrow-Gauge is five miles long, and extends from the furnaces at Rockwood to King's Creek P. O., on the Tennessee River, where it connects with steamboat lines. General Manager, H. Clay Evans, Chattanooga.

The Sequatchee Valley Railroad is in course of construction from Spring City, on the Cincinnati Southern, to the Cumberland Plateau and across to Pikeville, in Sequatchee Valley. It is completed about half the total length. Officers: President, Charles Clinton; Superintendent, Isaac Linton. Offices, Spring City, Tenn.

The Tennessee Coal and Iron Company's Railroad leaves the Nashville, Chattanooga and St. Louis Road at Cowan and extends to the company's coal mines at Tracy City, twenty-three miles. It passes by Sewannee, the location of the University of the South, and gives access to the summer resorts on the Cumberland Table Land. President, J. C. Warner; General Manager, A. M. Shook.

AGRICULTURAL PRODUCTS.

Tennessee is so happily situated geographically and topographically that her fields yield, in greater or less abundance, nearly every agricultural product known to the temperate zones. Perhaps no State in the Union can surpass her in this respect. The principal crops cultivated are corn, wheat, oats, rye, barley, clover, a great variety of grasses, sorghum, tobacco, cotton, potatoes, vegetables of all kinds and fruits in great abundance and variety. It has been truthfully said that were the state surrounded by an impassable barrier, she could produce within her own borders every essential to the subsistence of a dense population.

Hitherto our agricultural methods have been in the main quite primitive in character, and little attention has been given to fertilization [illegible] to improved methods of culture. With better systems of cultivation and the judicious use of fertilizers, [illegible] warranted in saying that the average yield per acre of all, or nearly all, of the crops cultivated in Tennessee may be doubled. [illegible] millions of acres of uplands now lying idle which [illegible] into cultivation and made to yield remunerative [illegible] or grass, and much of our low land which, [illegible] drainage, can be made to equal in [illegible] the most fertile lands of the world.

According [illegible] for 1880 the area devoted to the [illegible] in Tennessee was 2,904,[illegible] acres, which produced [illegible] bushels, being an average of 21.6 bushels [illegible] to wheat was 1,196,563 acres. [illegible] bushels, being an average yield [illegible]. Of rye the acreage was 32,19[illegible] [illegible] average 4.8 bushels.

The area [illegible] acres, which produced 1,722,190 [illegible] per acre of ten bushels. Of buckwheat [illegible] which yielded [illegible]3,434 bushels, or [illegible]. Of barley there were 2,500 acres, from [illegible] harvested, or an average of 11.5 bushels [illegible] population of Tennessee

was 1,542,359, it will thus be seen that forty-two bushels of the cereals were produced in the State for each man, woman and child within her limits.

According to the same returns, cotton for that year was grown in only twenty-five of the ninety-five counties of the State, the area being 722,562 acres, and the yield being 330,621 bales, Shelby County being next to the largest cotton-producing county in the Union. The average yield per acre in pounds for the State was 217 pounds lint.

Tobacco was grown in every county in the State, the aggregate acreage being 42,532 acres and the yield 29,365,052 pounds; being an average of 690 pounds per acre.

For the cultivation of grasses the soil of Tennessee is well adapted. Blue grass grows spontaneously on all our limestone lands. Timothy, herds grass and many varieties of wild grasses grow with great luxuriance. Orchard grass does well and yields heavy crops, giving excellent grazing during the winter and early spring. Bermuda grass yields rich pasturage during the dryest and hottest portions of the year. Red clover gives a bountiful crop, making from two to three tons of excellent hay.

Irish potatoes will grow from one hundred to three hundred bushels per acre and of good quality. Sweet potatoes are equally productive and are unsurpassed as to quality. Melons of all kinds, pumpkins, squashes and kindred products yield largely. Beans, peas and vegetables of nearly all kinds are raised in great abundance. Turnips grow to several pounds' weight. The stock pea furnishes heavy crops of forage and is regarded by many as being superior to clover as a renovator of exhausted soils. Sorghum grows to great perfection and possesses saccharine properties in a high degree. Fruits of nearly all kinds common to temperate climates thrive well in Tennessee. Peaches, when the orchards are judicously located, seldom fail to bear full crops of delicious fruit. Apple orchards, when properly cared for, bear heavily. Pears, plums and cherries are successfully grown all over the State. Strawberries are largely cultivated at many localities for distant markets, and repay the care given them with large profits. Blackberries and dewberries are indigenous and grow in great profusion. Raspberries, gooseberries, currants, etc., grow to perfection. In the last few years the cultivation of grapes is receiving much attention in various sections of the State. They are successfully

grown for market and for wine, which is made of excellent quality. Our plateau lands are well adapted for this industry. Recently various parties at different points have been giving attention to the rearing of silk worms, and have met with marked success, especially the Swiss colonists at Gruteli, on the Cumberland Plateau, and Mr. P. Wallace McKittrick, of Memphis. The mulberry, on which they feed, thrives on all our soils, and the silk which they produce is said to be of the finest quality.

CLIMATE.

The climate of Tennessee is as varied as her topography. Differences in altitude and topography affect climate equally with differences of latitude. The city of Vera Cruz in Mexico, lies within the tropics; hence, has in point of temperature, continual summer, while Mount Orizaba, no more than seventy-five miles to the westward, has perpetual snow. We may therefore expect to find in Tennessee, covering nearly two degrees of latitude, and nearly nine degrees of longitude, and varying in its elevation by more than 6,000 feet, crossed by two mountain ranges, intersected by valleys and great rivers, a great variety of climate. The lofty mountains of East Tennessee must necessarily differ greatly in climatic conditions from the low lying valleys of the west. The valley of East Tennessee sheltered from the winds by the surrounding mountains, having an elevation of 1,000 feet above the sea level, must necessarily differ from the *land-locked* basin of Middle Tennessee, with its lesser altitude of 700 feet.

The Cumberland plateau, with an elevation of 2,000 feet, has a climate different from the plateau or slope of West Tennessee, with its varying altitude of from four to 700 feet.

Accordingly, we find a greatly diversified climate, varying in humidity and temperature, according to these varying circumstances. Observations reported by Prof. Safford taken at six different stations, show differences of mean temperature as follows: Knoxville, average mean for three years, 57.03°; Lebanon, two years, 57.76°; Nashville, five years, 58.47°; Glenwood, twenty-one years, 56.78°; Memphis, two years, 60.80°.

Knoxville is in the valley of East Tennessee with an elevation of about 1,000 feet. Nashville in Middle Tennessee with an altitude of 600 feet, shows a temperature 1.44 higher than Knoxville. For the year 1855, the difference between these points was 2.08°. Glenwood, near the northern boundary of the State for the same year gave a mean temperature of 57.34°, being 2.49° lower than Nashville, and a fraction lower

than Knoxville. This difference must be the result of its more Northern location as its altitude is 100 feet below that of Nashville. Memphis, which is in the extreme southwestern portion of the State, for the years 1855-6, had a mean of 60.80, being 2.36 higher than that of Nashville for the same years. On the Cumberland table-land, the temperature is two to three degrees lower than in the valley of East Tennessee, four to five lower than in the central basin, and from five to six less than on the slope of West Tennessee. These variations of temperature are sufficient to give rise to a marked difference in the agricultural products of the different sections. In West Tennessee, cotton is the leading staple cultivated. Shelby County being the second largest cotton producing county in the Union. The cultivation of this crop grows less as the Kentucky line is approached. In Middle Tennessee, only a few counties in the southern part are devoted in part to this crop, while in East Tennessee it is planted only in a few counties on a very small scale. The cool and bracing atmosphere of the Cumberland plateau, and of the elevated portions of East Tennessee, render those parts of the State delightful as resorts during the summer heats.

Of course these variations in climate have, as already shown with reference to cotton, a decided effect in determining the character of the agricultural products of the different sections of the State, but of this I will speak more fully in another place.

The growing season for the various crops may be computed by the number of days which elapse between the last killing frost in spring, and the first in autumn. From the observations of Prof. Stewart at Glenwood, on the northern boundary of the State for a period of 23 years, the average length of the growing season was 189 days. In the southern part of the State, observation would probably show about 200 days increased to 210 in the western portion.

The amount of rainfall during a year is a very important point in considering the climate of a country. If there be too much, it interferes with the cultivation of the soil, while if too little the growth of vegetation is checked. In this, as in other respects, Tennessee enjoys a happy medium. According to the observations of Prof. Stewart, already referred to, the average annual rainfall (including snow) for 23 years was approximately 46 inches.

Snow occasionally falls throughout the State, varying in

quantity from the lightest covering to the earth to from four to six inches, and in rare instances reaching the depth of 12 to 18 inches. Except in the mountain regions it seldom remains upon the ground more than a few days. Ice is sometimes formed from four to ten inches in thickness.

For a period of ten years, during which Prof. Stewart has furnished us a record of the direction of the prevailing winds, it appears that the average number of days during which the wind blew from different points of the compass were as follows (the figures are given without decimals): North, 120; northeast, 128; east, 105; southeast, 119; south, 176; southwest, 116; west, 75; northwest, 130; calm, 126.

The climatic conditions of Tennessee are highly favorable to health and longevity, as well as to the physical and intellectual development of the human family.

LIVE STOCK.

In its adaptation for the rearing of stock Tennessee is scarcely surpassed by any State in the Union. The mildness of its climate, both summer and winter, the healthfulness of its atmosphere, the purity of its water, the richness of its pastures and the abundance of grain, make it the Paradise of stock raisers. Where proper attention has been given to breeding, Tennessee can show as fine stock of all the different kinds as are to be found anywhere.

HORSES.

According to the census of 1880 the number of horses in Tennessee was 266,119, while the number of mules and asses was 173,488, making a total of 439,607. Many mules are annually sold from Tennessee to supply the demand in States further south. These animals are of good size and form and command high prices in the market. Owing to the advantages which our State possesses they are cheaply raised, and add largely to the revenues of our people.

Among the horses of Tennessee are some of the finest specimens of the equine race. Representatives of all the different breeds which are considered most valuable are to be found here, and the fact that when carefully bred here they retain all their original excellence, if, indeed, they do not attain a higher development, is proof conclusive of the adaptation of our soil and climate for rearing animals of the greatest value. One has but to visit the stables of some of our prominent breeders to satisfy himself that Tennessee horses are equal to the best. The sales at Gen. Harding's stables of yearling colts at $4,500 and $7,500 each, attest the public confidence in the value of Tennessee-bred horses.

CATTLE.

The number of cattle reported in 1880 was: Milch cows, 303,832; working oxen, 27,340; other cattle, 452,462; total,

783,634. What may be called our native breed of cattle are hardy and serviceable animals. They usually receive but little care or attention. Their natural hardiness and the mildness of our climate enable them to endure our winters upon scanty feed and often without any sort of shelter. During the spring and summer they fatten upon the natural pastures, requiring no attention but an occasional portion of salt. When properly fattened they make excellent beef. As working oxen on the farm, their hardiness, docility and agility make them highly valuable. Among the cows are many excellent milkers, both as to the quality and quantity of their milk. Doubtless if they were carefully and judiciously bred for a few years their value as dairy stock would be much enhanced.

Of late years much attention has been given to the introduction of the improved breeds of cattle. The Shorthorn finds a congenial home upon our rich meadows. Almost every stranger who visited Knoxville during last year had occasion to admire Col. Dickinson's *Babies*, as he facetiously termed two mammoth Shorthorns reared by him. These animals were ultimately sold for the benefit of some charity, bringing something over twenty cents per pound.

The small, though graceful and fawn-like Jersey cow, is at home upon our more hilly and broken pastures, where the sweeter herbage and grasses afford suitable pabulum for the delicious cream and butter for which this fairy among bovines is noted. Both these improved breeds are now widely disseminated, and by their crossing with our native cattle are adding greatly to the value of our stock.

Among the improved breeds of cattle the Ayrshires and Devons should not be omitted. For some purposes and by some of our stock-raisers these breeds are considered equal to the best. They all thrive well in Tennessee.

HOGS.

Perhaps there is no country in the world better adapted to the growth of swine than Tennessee. The number of hogs reported in the State in 1880 was 2,158,169, being an increase in the last ten years of 529,479. While this increase in the number of hogs has occurred, there has also been a marked improvement in value, from the more general diffusion of improved breeds, such as Berkshires, Essex, Sussex, Yorkshires,

Poland Chinas, Jersey Reds, etc. With the more general cultivation of the grasses and clover and a better system of farming generally, there is no reason why the rearing of hogs for market should not be largely increased and made more highly remunerative than at present.

SHEEP.

Sheep husbandry should be one of the most profitable branches of farming in Tennessee. Adaptation of soil and climate have certainly placed it within the power of our people to develop this branch of industry to a very profitable extent. The number of sheep in Tennessee in 1870 was 876,783; in 1880 the number reported was only 673,117, showing a decrease of 204,666 in ten years. This diminution in the number of sheep kept is doubtless owing to the fact that there is practically no legal protection for the property of the flock-owner from the ravages of vicious dogs. Many sheep are annually killed by these depredators, and farmers are thereby discouraged from this, which would otherwise be one of the most profitable forms of agricultural industry. To encourage sheep husbandry our Legislature enacted a law exempting fifty head of sheep in the hands of each head of family from sale by execution by the sheriff for debt, but there is no law protecting them from execution by the remorseless cur. A few years ago the Legislature was induced by the representations of some of our intelligent farmers to pass a law imposing a tax on dogs, which, for the brief period that it remained on our statute books, had the effect to largely decrease the number of dogs in the country. So great, however, was the opposition to the law among the people that it was repealed at the next session. Upon the repeal of the law the dogs again increased while the sheep decreased. It is gratifying, however, to have assurances that the "sober second thought" is returning, and that with the growing desire among all classes for developing the resources of the State, it will not be long until this industry will receive all the protection which legislation can give.

While the number of sheep in the State has largely decreased, it is probable that the value of the flocks is fully equal to, if in fact it does not exceed, the valuation ten years ago. This is owing to the propagation of the more valuable breeds of this animal. So far back as 1849–50, through the instrumentality

of Mark R. Cockrill, Tennessee asserted her ability to compete with the world in the production of the finest grades of wool, having secured the grand medal at the World's Fair at London. Since that date her reputation in this respect has been fully sustained. More recently the long-wooled and mutton sheep have been introduced with success, and flocks are to be found which rival the best of other sections.

POULTRY.

As the population of our cities increases and facilities are given for speedy and cheap transportation to the populous cities of other States, the rearing of poultry for their flesh and eggs is becoming a matter of much interest and profit to our people. Those who pursue this business systematically find that for the small outlay of capital required, the profits are liberal. Our favorable geographical position enables us to reap the benefits of the markets while our Northern neighbors are still fettered with the frosts of winter, thus giving us the advantage of the very best markets with comparatively little competition. All varieties of domestic fowls do well in Tennessee.

BEES.

Bee culture may be classed with those small industries which, for the capital invested, often yield more satisfactory profits than some of more pretentious character. Tennessee, from the mildness of its climate and the great abundance and variety of its honey-producing plants, is well adapted for bee-keeping. Almost every thrifty farmer keeps a few colonies of bees, looking only to a supply of honey for domestic use. Parties who engage in this business as a specialty find it highly remunerative. The Italian bee has been introduced and largely disseminated. Where it has been tried it is a decided favorite.

STATE POLITY.

Under the Constitution of Tennessee the powers of the State government are distributed between three co-ordinate departments, the Executive, Legislative, and Judicial. The chief Executive power is vested in a Governor, chosen every two years by the qualified voters of the State. He is assisted in the administration of the government by a Secretary of State, elected by the Legislature every four years: a Comptroller, chosen by the same body every two years, and a Treasurer chosen for the same term. The Governor appoints a Superintendent of Public Schools and a Commissioner of Agriculture, Statistics and Mines, and Superintendent of Prisons. The Governor also appoints a Military Staff, one of whom, the Adjutant General, acts as his private Secretary.

The Legislative power is vested in the General Assembly, consisting of the Senate and House of Representatives, the former consisting of thirty-three, and the later of ninety-nine members, who are elected for two years and hold regular biennial sessions.

The Judicial power is vested in Justices of the Peace and the Judges of the County, Circuit, Criminal, Chancery and Supreme Courts. The latter is composed of five Judges who hold their offices for eight years and who constitute the court of highest resort in Tennessee. The judges are all chosen by popular election. The Sheriffs and other county officers are elected by the people for two years. An Attorney General is also elected for each court having criminal jurisdiction, to prosecute on behalf of the State for crimes and misdemeanors. Punishment for crimes and misdemeanors is by fines and imprisonment in the county jails and in the State prison. The punishment of death may also be inflicted for capital offences. The Governor has power to grant remission of fines, commutation of sentence, reprieves and pardons.

The State Officials at present are: Alvin Hawkins, Governor; D. A. Nunn, Secretary of State; J. N. Nolan, Comptroller; Ernest Hawkins, Adjutant General and Private Secretary.

W. S. Doak, Superintendent of Schools; A. W. Hawkins, Commissioner of Agriculture, Statistics, Mines and Immigration; Judges of Supreme Court—Chief Justice, J. W. Deaderick; Justices—T. J. Freeman, Peter Turney, W. F. Cooper and W. J. McFarland; Speaker of the Senate, Geo. H. Morgan; Speaker of the House of Representatives, H. B. Ramsey; Attorney General for the State, B. J. Lea.

PROPERTY AND TAXATION.

Under the revenue laws of Tennessee, all property owned in the State, excepting $1,000 worth of personalty belonging to the heads of families, is subject to taxation for State and county purposes. The tax on property levied by the State is forty cents on the hundred dollars' worth, ten cents of which shall be for school purposes. Merchants pay *ad valorem* and privilege taxes amounting to seventy cents on the hundred dollars' worth, ten cents of which is for free schools. Taxes are also levied upon a great number of privileges and upon polls, the poll-tax being applied to school purposes. The county courts are authorized to levy taxes for general county purposes not to exceed the State tax.

The total amount of property (exclusive of railroads) assessed for taxation in 1881 was $225,289,873, being an increase over the preceding year of $13,521,435.

The assessed value of railroads in the State is about $27,000,000, which, added to the property assessed, makes an aggregate of $252,289,873. About $17,000,000 of the railroad property is now paying taxes, and the remainder will be in a short time. In 1880 the average value of land in the State as assessed for taxation was six dollars per acre.

PUBLIC ROADS.

Until recently the system of maintaining public roads in Tennessee has been very imperfect. Recently, however, our laws on this subject have been radically changed and much improved. Under our present law, each county is divided into road districts, with three road commissioners for each district, elected by the county court. The county court of each county assesses annually a road tax, which can not be less than two nor more than fifteen cents on every $100 of taxable property in the county, and on privileges not exceeding one-fourth the assessment for county purposes. It also fixes the number of days' work which the road hands may be required to perform without compensation during the year upon public roads within their respective districts. The road hands are, all male citizens between the ages of eighteen and fifty years who have not been excused for physical disability. Overseers of roads are appointed by the commissioners. A portion of the road tax may be paid in work at rates fixed by law.

Under the operations of this law our public roads have greatly improved during the last twelve months.

MANUFACTURING.

Tennessee possesses advantages for manufacturing industries which must soon give her a prominent position as a manufacturing State. Her abundance of coal, iron, timber, and her superabundant water power; her contiguity to the great cotton fields of the South, taken in connection with the salubrity and mildness of her climate stamp her as a field well adapted for the development of manufacturing enterprise.

In point of fact, notwithstanding the unsettled financial policy of our State has for years past greatly retarded development in this direction, many enterprises of great practical utility have been inaugurated, and by their success have demonstrated that manufactures in Tennessee will pay.

Now that the odium of repudiation has been lifted from our State, we may confidently anticipate that an influx of capital and of skilled labor will soon give an impetus to manufacturing industry such as Tennessee has never before witnessed.

So far Nashville, Chattanooga and Knoxville are the principal manufacturing points in the State.

EDUCATIONAL.

Tennessee enjoys peculiar advantages for the higher education of the youth of both sexes. The following universities are located within her limits: Vanderbilt University, Nashville; Tennessee University, Knoxville; Wesleyan University, Athens; Cumberland University, Lebanon; University of the South, Sewanee; Southwestern University, Clarksville; Southwestern Baptist University, Jackson; Fisk University (colored), Nashville; all of which maintain a high standard of scholarship.

Besides these universities, all of which except the University of Tennessee, at Knoxville, are under the care of some one of the religious denominations of the country, there are large numbers of colleges, collegiate institutes, seminaries, academies and high schools. The University of Tennessee has an Agricultural Department under the charge of Prof. McBryde, which is rendering invaluable service to the agricultural interests of the State. In many localities good private schools have been maintained for many years and have established for themselves quite enviable reputations.

Under the laws of Tennessee, each city and incorporated town has authority to levy a tax for school purposes, and the large majority of them have availed themselves of the privilege and established graded schools of good character.

The State has a well arranged system of free schools, which is gradually becoming efficient for the education of the masses of her children.

The total expenditure for free schools in Tennessee during the past year was $835,629.22. The whole number of free schools taught in the State during the year was 5,603, with an average duration of four months and six days. The average daily attendance upon these schools was 180,509.

It is confidently anticipated that within a very few years the rapidly growing interest which is being developed throughout the State will give to our free schools all the efficiency which the friends of popular education can desire.

CHURCHES.

Nearly all religious denominations known in the United States have organized societies and able ministers in Tennessee. The Methodist Episcopal Church, South, has three annual conferences, mostly in Tennessee; its membership within the State is very large. The Methodist Episcopal Church has also three annual conferences. The Baptists, of different orders, are also numerous and have many churches and ministers. Presbyterians of the different orders, Episcopalians, Christians (Campbellites), Catholics and other denominations are numerous. All have valuable properties and nearly all have denominational schools. Scarcely a neighborhood in the State but has one or more churches conveniently located, and all are zealous in the Master's work.

BENEVOLENT INSTITUTIONS.

The benevolent institutions sustained by the State are, the Asylum for the Insane, located near Nashville; the School for the Blind, at Nashville; and the Asylum for the Deaf and Dumb, located at Knoxville. These institutions are supported by liberal appropriations from the treasury of the State, and are placed under the control of competent and faithful officials. Each county provides for its own indigent.

EAST TENNESSEE.

TABLE NO. 1.

Showing Total Area of each County, Quantity of Improved Land, Average Value per Acre of Land in the County, Population and Value of Property Assessed for taxes.

COUNTIES.	Total area acres.	Acres improved.	Average value of land per acre.	Population.	Total value of property assessed for taxes.
Anderon	281,600	64,283	$4 88	10,820	$ 967,278
Bledsoe	179,200	46,375	2 16	5,618	551,729
Blount	462,800	100,464	4 56	15,985	1,565,767
Bradley	217,600	76,938	6 61	12,124	1,226,584
Campbell	256,00	59,905	2 69	10,005	722,575
Carter	217,600	47,119	3 76	109,19	821,390
Claiborn	217,600	83,535	1 13	13,373	870,969
Cocke	345,600	78,971	4 80	14,808	1,185,780
Grainger	204,800	89,249	6 41	12,384	1,153,064
Greene	339,200	178,917	5 90	24,004	2,345,843
Hamblen	96,000	54,693	9 34	10,188	933,596
Hamilton	236,800	55,854	8 14	23,642	1,811,240
Hancock	217,600	53,708	4 68	9,098	483,550
Hawkins	364,800	140,502	6 26	20,610	1,839,541
James	128,000	33,409	4 98	5,187	520,587
Jefferson	194,800	76,940	9 99	15,846	1,672,499
Johnson	249,600	39,623	2 25	7,776	486,217
Knox	320,000	172,361	13 56	39,121	3,752,686
Loudon	147,200	76,823	8 27	9,148	1,163,613
Marion	320,000	49,646	3 30	10,911	1,110,955
McMinn	307,200	111,363	5 98	15,064	1,634,862
Meigs	19,200	52,587	7 03	7,117	891,285
Monroe	329,000	101,133	4 58	14,283	1,669,990
Morgan	259,000	23,006	1 52	5,156	557,125
Polk	256,000	38,460	3 75	7,269	811,823
Rhea	217,600	44,290	4 73	7,073	931,984
Roane	288,000	77,345	8 32	15,237	1,880,709
Scott	409,600	33,298	1 16	6,021	456,547
Sequatchie	140,800	17,217	1 50	2,565	240,122
Sevier	332,800	85,852	2 95	15,541	1,346,013
Sullivan	256,000	128,670	5 42	18,321	1,536,761
Unicoi	307,200	19,297	1 76	3,645	174,070
Union	140,800	63,465	5 88	10,261	707,507
Washington	224,000	120,471	6 04	16,181	1,433,125

LIVE STOCK OF EAST TENNESSEE.

TABLE NO. 2.

Showing Total Number of Live Stock in each County.

COUNTIES.	HORSES AND MULES.	CATTLE.	SHEEP.	HOGS.
Anderson	2,869	5,588	6,371	14,008
Bledsoe	1,502	6,964	5,937	15,890
Blount	4,141	8,728	11,992	19,476
Bradley	2,746	5,283	6,393	11,242
Campbell	2,135	7,750	7,156	15,141
Carter	1,911	4,877	5,467	12,830
Claiborne	3,172	7,137	9,136	21,182
Cocke	3,181	8,063	6,561	22,496
Grainger	3,111	6,369	6,524	15,617
Greene	7,036	1,498	13,652	29,778
Hamblen	2,240	4,148	5,467	9,724
Hamilton	2,205	5,235	4,017	11,323
Hancock	1,875	4,689	5,956	12,406
Hawkins	5,374	11,848	10,856	22,284
James	1,268	2,756	2,247	6,316
Jefferson	4,301	7,127	6,421	19,711
Johnson	1,464	4,841	5,766	8,466
Knox	6,836	12,673	9,099	26,219
Loudon	2,521	5,439	5,269	12,303
Marion	2,052	6,403	4,588	16,698
McMinn	3,396	6,838	8,473	16,276
Meigs	2,033	3,698	3,833	10,531
Monroe	3,698	8,592	8,212	18,938
Morgan	1,071	4,710	5,490	13,363
Polk	1,369	3,795	5,724	8,452
Rhea	1,606	4,295	3,666	10,774
Roane	3,526	7,939	6,688	17,775
Scott	1,463	6,216	6,522	11,472
Sequatchee	785	2,904	2,470	6,961
Sevier	3,728	7,940	9,471	19,516
Sullivan	4,936	9,525	9,867	20,071
Unicoi	703	2,164	2,784	5,525
Union	2,506	4,293	5,481	13,475
Washington	4,595	9,565	9,453	17,653

Cereal Products of East Tennessee.

TABLE NO. 3.

Showing the Cereal Productions of East Tennessee by Counties.

COUNTIES.	Barley	Buck-Wheat.	Indian Corn.	Oats.	Rye.	Wheat.
Anderson	61	153	396,958	86,198	1,208	44,609
Bledsoe	.....	84	342,240	21,282	2,405	18,106
Blount	13	114	450,011	95,367	1,027	110,196
Bradley	.....	37	337,446	25,672	693	88,961
Campbell	.....	47	341,945	68,834	2,725	25,549
Carter	282	4,704	243,906	51,141	2,094	55,150
Claiborne	.....	135	496,262	74,921	2,422	44,192
Cocke	115	725	553,567	50,165	1,901	94,763
Grainger	102	.....	356,128	83,078	617	61,563
Greene	1,288	3,688	719,465	139,134	1,237	237,302
Hamblen	1,906	121	231,184	51,270	432	66,057
Hamilton	.....	.....	461,070	45,378	2,675	45,925
Hancock	.....	140	292,195	41,625	1,180	32,189
Hawkins	73	839	706,899	117,578	1,210	115,636
James	.....	.....	223,701	15,148	139	34,657
Jefferson	111	235	506,592	83,035	445	125,849
Johnson	.....	5,132	147,388	39,496	4,906	31,022
Knox	974	284	752,559	228,786	3,162	227,705
Loudon	.....	.....	319,283	91,298	1,212	90,555
Marion	.....	.....	474,115	54,582	788	18,275
McMinn	.....	.....	480,898	78,372	1,383	119,873
Meigs	.....	.....	444,103	45,124	518	47,797
Monroe	.....	35	566,356	80,793	1,855	114,884
Morgan	.....	523	115,327	19,490	4,880	2,832
Polk	.....	60	239,224	10,505	1,847	37,126
Rhea	.....	78	362,801	38,650	851	31,290
Roane	326	73	697,787	130,821	3,248	54,276
Scott	.....	369	185,646	23,060	3,003	2,297
Sequatchie	.....	.....	145,532	6,337	1,519	6,735
Sevier	15	32	493,885	53,274	1,353	89,499
Sullivan	1,533	7,523	550,374	111,662	2,063	131,319
Unicoi	40	1,283	81,852	22,501	2,266	9,365
Union	.....	221	319,702	62,233	916	39,208
Washington	2,658	4,514	407,633	109,579	794	153,204

CIVIL DIVISIONS.

Tennessee is divided into East Tennessee, Middle Tennessee, and West Tennessee. Each of these divisions constitutes a Federal district. The Federal Courts for East Tennessee are held at Knoxville and Chattanooga; for Middle Tennessee, at Nashville, and for West Tennessee, at Memphis and Jackson. As these divisions are in many respects different, in giving a more detailed description by counties, they will be treated separately.

EAST TENNESSEE.

It is bounded on the south by the State of Georgia, on the east by North Carolina, on the north by Virginia and Kentucky, on the west it adjoins Middle Tennessee near the center of the Cumberland Plateau. East Tennessee is noted for the fertility of its valleys, the beauty of its mountain scenery, the salubrity of its climate and its rich mineral deposits. It embraces the following counties, which will be described in alphabetical order to-wit:

Anderson,	Hancock,	Morgan,
Bledsoe,	Hawkins,	Polk,
Blount,	James,	Rhea,
Bradley,	Jefferson,	Roane,
Campbell,	Johnson,	Scott,
Carter,	Knox,	Sequatchee,
Claiborne,	Loudon,	Sevier,
Cocke,	Marion,	Sullivan,
Grainger,	McMinn,	Unicoi,
Greene,	Meigs,	Union,
Hamblen,	Monroe,	Washington.
Hamilton,		

ANDERSON COUNTY.

Anderson county lies partly in the Valley of East Tennessee and partly on the Cumberland Plateau. The county presents a broken surface, but fairly productive soil. Clinch River is

navigable through the entire length of the county. The county is well watered with numerous creeks. Clinton, the county town, is on Clinch River and on the Knoxville and Ohio Railroad, and has a population of 263. Other towns are, Andersonville, Coal Creek, a mining town, and Oliver's, a watering place and summer resort of considerable repute.

Anderson county possesses great mineral wealth, consisting of iron, coal and zinc. The iron ore is the fossil red hematite or dyestone ore of good quality, but not at present mined to any large extent. Coal of excellent quality is extensively mined at Coal Creek. Six companies are now engaged in this business and employ about 360 miners. Zinc is also found near Clinton, and the mines are worked with profit. There is a broom-handle factory at Clinton. The county is well supplied with valuable timber, among which is oak, poplar, ash, hickory, walnut and pine. There are good schools at Andersonville, Clinton and Poplar Creek.

The religious denominations most numerous are Baptists and Methodists. The tax for county purposes is 30 cents per $100; road tax 10 cents.

BLEDSOE COUNTY.

This county lies partly on the Cumberland Plateau, but includes the Sequatchee Valley, which has an average width of about four miles, and runs entirely through the county. The soil in the valley is good but on the mountains is sandy and poor. The county is well watered by the Sequatchee River and its tributaries. The Sequatchee furnishes excellent water power during the greater part of the year. Timber is abundant, consisting of oak, chestnut, poplar and walnut. Coal and iron are abundant, but are not mined to any extent for want of transportation. Pikeville is the county seat, and has 146 inhabitants. Melville is the only other town in the county. The principal agricultural products are corn, wheat, oats, hay, tobacco, syrup and fruits. Much stock is annually fattened and driven to market.

There are two colleges and one institute located in Bledsoe county.

The most numerous religious denominations are Methodists, Baptists, Presbyterians and Disciples. The taxes are: school tax on $100, 15 cents; for county purposes, 10 cents; road tax, 12 cents.

BLOUNT COUNTY.

County seat, Maryville; population, 1,098. Other towns, Louisville, Friendsville and Rockford. Navigable streams, Tennessee and Little Tennessee rivers. Other streams, Little River, Nine Mile and Pistol creeks. The face of the country is formed of valleys separated by narrow ridges; mountainous in southeastern portion. Timber is abundant, consisting of pine, hickory, oak, ash, sweet gum, walnut, poplar, beech, &c. Water power is excellent. The valley lands are fertile but the ridges are inferior. Iron ore is found in abundance in the southeastern part of the county, and marble of fine quality in the western. Copper is also said to be found in some localities. About 25 persons are engaged in mining, principally in marble quarries. The chief agricultural products are corn, wheat, oats, potatoes and fruit.

Maryville College, the Normal College (colored), Normal and Preparatory School (Quaker), and the Porter Academy are the principal schools. There are one cotton, two woolen, one sash and blind and one button factory located in this county. The button factory makes beautiful buttons, resembling pearl, from mussel shells found in the streams of the county. The capital invested in manufacturing is about $100,000, and the number of persons employed about one hundred.

The religious denominations are Methodists, Baptists, Presbyterians, Friends and Christians. The taxes on $100 of property are: for schools, 25 cents; for roads, 15 cents; for county, 30 cents; for railroad debt, 60 cents. This debt was contracted to build the Knoxville and Augusta Railroad, and will be liquidated in a year or two.

BRADLEY COUNTY

Is situated on the East Tennessee, Virginia and Georgia Railroad, which has its eastern terminus at Bristol, and its southern and western termini at Dalton and Chattanooga. Cleveland is the county seat, and has 1,874 inhabitants. Other towns are, Charleston, Chatata and McDonald's Station. The face of the country is diversified with valleys and ridges, some parts mountainous. The soil in the valleys is excellent, the ridges less fertile. The Hiwassee River is navigable during a portion of the year. Other streams are Candy's, Chatata, Black

Fox, Chestua, Mouse and a number of other creeks, affording excellent water power. The county is well timbered with oak, pine, hickory, walnut and poplar. The minerals are iron, lead, coal and marble. About 20 hands are employed in the marble quarries. Considerable iron has also been mined in this county, giving employment to 200 hands. It is said, to the praise of Bradley county, that there is not a single retail liquor shop in the county. The principal manufacturing establishments are a woolen mill, a number of flouring mills and a foundry and plow factory. Capital $60,000; number of hands employed, 50. The principal agricultural products are corn, wheat, oats, rye, grass, clover, cotton, sorghum and potatoes.

Taxes on $100 are: for schools, 15 cents; for roads, 15 cents; for county, 30 cents. Religious denominations: Episcopalian, Presbyterian, Cumberland Presbyterian, Baptist and Methodist.

CAMPBELL COUNTY.

This is a mountainous county, but has some beautiful and very fertile valleys. The county seat is Jacksboro, which has a population of 274. Other towns are Careyville and Fincastle. The Knoxville and Ohio Railroad passes through the county. Powell's River, which runs through the county, is navigable for flat boats. Other streams are, Clear Fork River, Big Creek, Cove Creek, Cedar Creek, Hickory Creek, Rock Creek and numerous others, affording excellent water power. Timber is abundant, consisting of walnut, ash, poplar, hickory, oak, cedar, etc.

The minerals of Campbell county are coal, iron and zinc Coal is mined at a number of points and is of excellent quality Iron is mined to a limited extent. The number of hands employed in mining is about 100. The principal agricultural products are, corn, wheat, oats, rye, potatoes, turnips, grass, clover and fruit.

The principal religious denominations are Baptists and Methodists. There are good schools at Jacksboro, Well Springs and Fincastle. Taxes per $100: for schools, 20 cents; for roads, 15 cents; county purposes, 40 cents.

CARTER COUNTY.

Carter is one of the extreme eastern counties of the State, and is very mountainous, having only a small proportion of arable

land, lying along the streams, which is generally very fertile. Elizabethton is the county seat and has a population of 362. Other towns are, Hampton and Carter's Depot. The Watauga, Doe and Buffalo rivers are navigable in favorable stages. The water power in Carter county is excellent. The timber is abundant, consisting of white pine, oak, hickory, poplar, hemlock, chestnut and many other varieties. The minerals are iron, lead, silver, and manganese. Considerable iron was formerly made in the county, but the furnaces are now out of blast in consequence of litigation. The principal agricultural products are corn, wheat, oats, rye, buckwheat and potatoes. There are two woolen mills at Elizabethton, which is situated at the junction of the Doe and Watauga rivers, and is reached by the Western North Carolina Railroad. The East Tennessee, Virginia and Georgia Railroad passes through the county. The principal religious denominations are Methodists and Baptists.

CLAIBORNE COUNTY.

The topography of Claiborne county is diversified with hills, mountains and valleys. Some of the ridges have a poor, sandy soil, though for the most part the soil is good, though rough and stony, interfering with cultivation. Tazewell is the county town and has a population of 342. Other towns are, Springdale, Oldtown, Compensation and Speedwell. Powell's River runs through the county and is navigable for flat boats in high water. Powell's Valley is a fertile section. The minerals of this county are coal, iron and manganese. Iron was formerly worked at several points, but owing to the difficulty of transportation the work was discontinued. Timber is abundant and of excellent quality. Water power is extra good. Cumberland Gap, a point which has become historic, is in this county. A railroad is in contemplation from Careyville to Cumberland Gap, and when built will open up a valuable agricultural and mineral region. Tazewell College, at Tazewell, enjoys a good reputation. Local taxation is moderate, the county being in a good financial condition. The principal agricultural products are corn, wheat, oats, potatoes, rye, etc.

COCKE COUNTY.

Cocke county is generally broken and mountainous. It has some fine valleys with excellent soil. The county seat is New-

port, which has 347 inhabitants. The county is well watered by the French Broad and the Big Pigeon rivers and their tributaries, which afford ample water powers. Timber is abundant and good. A branch of the East Tennessee, Virginia and Georgia Railroad, from Morristown runs through the county to Wolf Creek on the North Carolina State line. Cocke county is rich in iron ores of finest quality, though but little developed. It has good schools and the usual religious denominations. Its staple products are corn, wheat, oats, grasses, etc.

GRAINGER COUNTY.

County seat, Rutledge, having 126 inhabitants Other towns are, Tate Springs and Mineral Hill Springs, which are both noted summer resorts. Navigable streams are the Holston and Clinch rivers, which afford water for flat boats. Besides these rivers there are a great number of creeks which furnish abundant water power. The general surface of the county is made up of a number of flute-like valleys and ridges running from northeast to southwest. The soil is generally good. There is great abundance of timber of many varieties, the oaks and pines predominating The mineral resources of Grainger county are undeveloped, though valuable minerals are believed to exist. The agricultural products are corn, wheat, oats and the various grasses, clover predominating among the grasses. In the county there are a number of manufacturing establishments on a small scale. The principal religious denominations are Methodists, Baptists and Dunkards. County taxation on $100: for schools 15 cents; for roads, 15 cents; for county purposes, 30 cents; special tax to pay indebtedness, 25 cents.

GREENE COUNTY.

The county seat of Greene county is Greeneville, on the East Tennessee, Virginia and Georgia Railroad. Its population is 1,066. Other towns are, Rheatown, Midway and Warrensburg. The topography of Greene county presents an extended plain, hemmed in between two mountain ranges. This plain is intersected by valleys and ridges. Along the valleys are numerous rapidly flowing streams affording abundant water power. Timber of excellent quality is abundant. The principal streams are Chucky River, Lick Creek, Little Chucky, Horse Creek and Camp Creek. The minerals are, iron in abundance, lead, copper,

zinc, and marble. But little mining is done at present. The principal agricultural products are corn, wheat, rye, oats, sorghum, hay and tobacco. Much attention has been given to the raising of fruit and poultry which have proven highly remunerative. There are in Greene county three colleges and a number of academies. About $250,000 are invested in manufacturing establishments.

The principal religious denominations are Methodists, Baptists, Presbyterians, Lutherans and Cumberland Presbyterians. Taxation per $100: for schools, 25 cents: for roads, 15 cents; for county purposes, 30 cents.

HAMBLEN COUNTY.

Hamblen is a small county on the East Tennessee, Virginia and Georgia Railroad. The county seat is Morristown; its population is 1,350. Other towns are, Russellville, Whitesburg and Witt's. The topography is varied, comprising river and creek bottoms, valleys, low Apalachian ridges, but no mountains. Holston and Chucky rivers form the north and south boundaries, while a number of smaller streams afford very considerable water power. The soil is generally good. Timber is sufficient for farm purposes. Iron, zinc and marble are found in the county, though but little has been done in the way of mining. The principal agricultural products are corn, wheat, oats and hay. Much attention is given to poultry and fruits, and large quantities are annually shipped. Dairying also receives considerable attention, and large quantities of butter are shipped to distant markets. The educational institutions are male and female high schools at Morristown; also a college for colored students and the Whitesburg Academy.

Religious denominations are Baptists, Methodists, Presbyterians and Lutherans.

Hamblen county has a sash and blind factory, a wagon and carriage factory, several steam flouring and saw mills, etc. Taxes per $100: for schools, 20 cents; for roads, 10 cents; for county purposes, 30 cents; for railroad debt, of which only a small mount remains to be paid, 30 cents.

HAMILTON COUNTY.

Hamilton county possesses vast mineral resources, which are being rapidly developed. Its annual output of coal amounts to

about 200,000 tons, and of iron ore to about 50,000. Quite a number of mines are being worked, and the number of miners employed is about 500.

Chattanooga, the county seat, has a population of 12,892 which is rapidly increasing. As a manufacturing point the city is rapidly growing in importance. With the advantages of the Tennessee River and its network of railroads for transportation, it bids fair to become, at no distant day, the chief manufacturing city of the South, if, indeed, it does not already occupy that position. The manufactures of iron and steel are doubtless destined to be in the future, as at present, the leading industry of the city: but while this is true, other branches of manufacturing are not neglected. The whole number of manufacturing establishments is 65. The amount of capital invested is estimated at from two and a half to three and a half millions, and the number of laborers employed at about 3,500.

The topography of the county is greatly varied. The larger portion is mountainous and wild, but the beautiful and fertile valley of the Tennessee and its tributaries occupies no inconsiderable space. Some of the ridges also are highly productive. The principal agricultural products are corn, cotton, wheat and fruit. Besides the iron and coal already mentioned, Hamilton county has marble, fire clay and hydraulic cement.

Chattanooga has a good system of graded schools, with an average daily attendance of 2,400, and thirty teachers, at an annual expense of $18,000. It is well supplied with churches of the various denominations common to the country. The taxes levied by the county are on each $100: for schools, 10 cents; for roads, 10 cents, and for county purposes, 20 cents.

HANCOCK COUNTY.

Hancock is one of the northern counties of Tennessee, bordering the State of Virginia. Its county seat is Sneedville, with a population of 157. Other towns are, Meadowfield, Clinch, New Sedalia and Yellow Spring. Its principal water-courses are Powell's and Clinch rivers, which are navigable part of the year, and Big War Creek. These streams and their confluents afford abundant water power. The general surface of the country is rough and mountainous, but interspersed with some fine valleys. Timber is abundant and excellent. Schools are good, and the county levies the usual taxes. The agricultural pro-

ducts are corn, wheat, oats, rye, hay and tobacco. Of religious denominations, there are Methodists, Baptists and Presbyterians. Iron ore is found in the county, but is undeveloped.

HAWKINS COUNTY.

Rogersville is the county town, and has a population of 740. The Rogersville and Jefferson Railroad connects it with the East Tennessee, Virginia and Georgia Railroad. Other towns are, Rogersville Junction, St. Clair and Mooresburg. A portion of the county is mountainous, but for the most part it is made up of a succession of valleys and ridges. In the valleys and on the northern slopes the soil is rich. On the southern slopes, generally rocky and poor. The navigable streams are the Holston and Clinch rivers. There are numerous smaller streams and excellent water powers at many localities. Timber, of excellent quality, is found in abundance. During the war, large quantities of salt were made in this county from a well 200 feet in depth. Mineral springs, which are frequent throughout East Tennessee, are most abundant in Hawkins county, and some of them are celebrated for their curative properties. Petroleum is found floating on the streams in some localities. Hawkins county is justly celebrated for its beautifully-variegated marble, which for its quality and beauty of coloring is perhaps not surpassed by any in the world. A number of quarries are being worked and about 300 hands employed. The business is rapidly increasing. Hawkins County has five academies and one female college. The religious denominations are, Baptists, Methodists, Presbyterians and Dunkards. The agricultural productions are those common to East Tennessee. The taxes levied by the county are, on $100: for schools, 20 cents; roads, 15 cents; county purposes, 40 cents.

Hawkins county has two woolen factories, a leather and shoe factory, a number of steam mills, etc.

JAMES COUNTY.

County seat, Ooltewah, with 263 inhabitants. Other towns are, Birchwood and Harrison. The Tennessee River separates James from Hamilton county. Other streams are, Wolftaver, Long Savannah, Grasshopper and Gunstocker. Water power, good; timber good, oak, pine, poplar, hickory, walnut, etc.

The surface of the country is broken and irregular, with con-

siderable valleys of fine arable land. The minerals are coal, iron and lead; the two former of which are mined to a considerable extent, giving employment to about 100 hands. The iron ore is the fossiliferous red hematite, and exists in large quantities. The coal is of good quality. The agricultural products are corn, wheat, oats, rye, barley, hay, tobacco, sorghum, potatoes, peanuts, etc. There are two high schools at Ooltewah, and one at Harrison. The churches are Baptist, Methodist and Presbyterian.

There are thirteen manufacturing establishments in the county, with a capital of $100,000.

The taxes on $100: for schools, 20 cents; roads, 10 cents; county purposes, 35 cents.

JEFFERSON COUNTY.

Jefferson county is crossed by the East Tennessee, Virgina and Georgia Railroad and touched on its eastern boundary by the branch road from Morristown to Wolf Creek. The county seat is Dandridge, which has 431 inhabitants. Other towns are, New Market, Mossy Creek, Talbott, Mt. Horeb, Kansas and other villages. Its navigable streams are the French Broad and Holston. It is also watered by a number of smaller streams, furnishing fine water power. The surface of the country is undulating, made up of valleys and rounded hills. The soil is fertile, yielding large crops of the products common to East Tennessee. It is well timbered with the usual varieties of timber, and contains deposits of marble, some of which are exquisitely beautiful. It has good schools and the usual religious denominations and the usual local taxation. Much attention is given to the improvement of stock, and the farmers are, as a class, thrifty and independent.

JOHNSON COUNTY.

Johnson is the extreme northeastern county of the State, touching both the Virginia and North Carolina lines. The county seat is Taylorsville, which has 278 inhabitants. It is watered by the Watauga River, Roane and Laural creeks, and has excellent water power. Timber is abundant and in great variety. The county is largely mountainous, but is traversed by a broad and beautiful valley of great fertility. Its productions are corn, wheat, oats, grass, clover, sorghum, potatoes, fruit, etc.

It has immense beds of valuable iron ore, and only lacks facilities for transportation to make it one of the richest mining sections of the State. Its educational facilities are good. It has the usual religious denominations and the usual rate of county taxation.

KNOX COUNTY.

Knoxville, the county seat of Knox County, is a beautiful and flourishing city, and may be regarded as the educational center of East Tennessee; the population of the city in 1880 was 9,693. It is rapidly increasing. Other towns are, Concord, Ebenezer, McMillan and Cooper on the East Tennessee Virginia and Georgia Railroad, besides a number of villages situated in various portions of the county. The navigable streams are the Holston, French Broad and Clinch rivers. Besides these there are numbers of small streams which afford good water power. The topography of the county presents a succession of ridges, sometimes broken into hills, and valleys. The soil is generally good; some of the valleys are exceedingly fertile. The agricultural products are corn, wheat, oats, rye, grass, clover, potatoes, fruits, etc. Much attention is given to raising fruits and vegetables for shipment. A large business is also done in poultry and in dairy products. Knox County has much fine stock.

Of minerals, Knox has numerous beds of iron ore, which, however, have been but slightly developed. Hydraulic cement of good quality is also found. The great mineral wealth of the county, however, consists in its extensive beds of variegated marbles. Some of these are very beautiful and are susceptible of high polish. Within the past few years an extensive trade in marble has grown up, of which Knoxville is the center. Many quarries of this marble are now being worked, and a large number of men are employed in this business. The University of Tennessee, with the State Agricultural College, the Knoxville College, the Deaf and Dumb Asylum are located at Knoxville. There are also a number of high schools located in different parts of the county. The usual religious denominations are found in the county. Knoxville has sixteen churches. A large number of manufacturing establishments are located in and around Knoxville, and quite a large business is done in various kinds of manufactures. A large capital is invested in these and many laborers are employed.

The taxes on $100: for schools, 10 cents; for county purposes, 30 cents; road tax, 15 cents.

LOUDON COUNTY.

Loudon is the county seat of Loudon county; population, 832. Other towns are, Stockton, Philadelphia and Lenoir's. The Tennessee River passes through the county; other streams are, Sweetwater, Pond, Fork and Town creeks. These streams furnish good water power. The face of the country is undulating, and the soil good. Timber is plentiful, of usual varieties. The East Tennessee, Virginia and Georgia Railroad runs through the county. The agricultural products are those common to East Tennessee. Stock raising is largely pursued by the farmers. Loudon county has good schools, and the usual rates of county taxation. At Lenoir, a cotton factory and large milling operations are carried on. Loudon county has large deposits of iron ore of good quality, though little mining is now being done.

MARION COUNTY.

Marion county is mountainous, but includes some fine valley lands on the Tennessee and Sequatchee rivers and their tributaries. There is fine water power on the Sequatchee. Jasper is the county seat, and has a population of 541. Other towns are, Victoria (a mining town), Mount Eagle (a watering place), and Whitesides. The soil in the valleys is excellent; on the table-lands it is adapted to fruit growing. There is great abundance of good timber including many varieties. The county contains vast quantities of iron and coal which are extensively mined. South Pittsburg is the principal manufacturing point. It has capital invested in mining and manufacturing iron and railroad cars to the amount of about a million and a half of dollars. A branch of the Nashville and Chattanooga Railroad extends from Bridgeport, Alabama, to Victoria. Corn, cotton, wheat, oats, potatoes and fruits are cultivated. There is a good school at Jasper, the Sam Houston Academy. Religious denominations are Baptists, Methodists, Presbyterians and Christians. Taxes on $100: for schools, 20 cents; for roads, 10 cents; county purposes, 20 cents.

McMINN COUNTY.

Athens is the county seat of McMinn county, and has a population of 1,100. Other towns are, Mouse Creek, Riceville, Calhoun, Turley Town and Williamsburg. The face of the country is agreeably diversified with ridges and valleys. The soil is generally good, and the county well timbered. The Hiwassee River forms the southern boundary of the county. Other streams are Spring Creek, Rock Creek, Mouse Creek, Brush Creek, Chestua, Estenaula, Connesauga and Rogers Creek. These streams afford ample water power. The staple products are corn, wheat, oats, grass, clover and fruits. Athens is the seat of the East Tennessee Wesleyan University. Other good schools are located in the county. The minerals are iron, marble and lithographic stone. The iron was formerly mined to considerable extent, but is not worked at present. Considerable marble has been quarried at intervals during the last few years. The principal churches are Baptist, Methodist and Presbyterian. Manufactures are woolen, cotton and flouring mills; capital, $100,000; employes, 75. Taxes levied by county on $100: for schools, 10 cents; for roads, 15 cents; for county purposes, 20 cents.

MEIGS COUNTY.

Meigs county is bounded in its entire length on the northwestern side by the Tennessee River. The Hiwassee River runs through the southwestern portion of the county. There are several smaller streams. Decatur is the county seat. Its population is 175. Other towns are, Big Spring, Lucknow, Goodfield, Sewee, Pinhook and Euchee. The valleys in this county are extensive and fertile. There are some ridges where the land is inferior. The county is well timbered. The usual crops of East Tennessee are grown in great abundance. Meigs county has extensive deposits of iron ore which is mined to considerable extent, the ores being shipped to Chattanooga. The educational and religious advantages are similar to those of adjacent counties.

MONROE COUNTY.

Monroe county lies in the southeastern portion of the State adjoining the North Carolina line. The southern portion of the county is exceedingly rough and mountainous, while the northern

part, lying in the Valley of East Tennessee, is a fine agricultural section. The Sweetwater Valley, especially, is one of the loveliest in the State. The county seat is Madisonville, which has a population of 300. Other towns are, Sweetwater, Glenlock and Belltown. The Little Tennessee and Tellico rivers furnish navigation, and the East Tennessee, Virginia and Georgia Railroad passes through the county. The county is well timbered and the valley lands are very productive. The principal educational institution is Hiwassee College. The county has the usual rates of taxation. Monroe county is very rich in minerals. The principal of these is iron, which exists in large quantities and of excellent quality. Besides iron, lead, marble and gold and silver are found in the county.

MORGAN COUNTY.

Morgan county is situated on the Cumberland Plateau. Wartburg is the county seat; population 159. Other towns are, Honeycutt, Nemo, Kismet, Anadell, Sunbright and Rugby. The Cincinnati Southern Railroad passes through the county. The soil is generally of inferior quality, though on the northern slopes and in some of the small valleys is more productive. The water courses are Emory and Obed rivers, Crooked Fork, Clear Creek and White Oak. On the flat table lands the timber is small, but in the valleys and on northern slopes there is much valuable timber. The agricultural products are corn, wheat, oats, grasses, fruits, etc. Valuable coal mines have been opened in this county and some three hundred miners are employed. The manufacturing consists of lumber of different kinds in which about 500 laborers are employed. There is a high school at Wartburg. The churches are Methodist, Baptist, etc. The taxes per $100 are: for schools, 10 cents; roads, 15 cents; county purposes, 30 cents.

POLK COUNTY.

Polk is the extreme southeastern county in the State. It adjoins Georgia on the south and North Carolina on the east. Benton, which has a population of 183, is the county seat. Ducktown is the only other town in the county. It is watered by the Hiwassee and Ocoee rivers, the first of which is navigable, and by a number of creeks. Water power is abundant. The

county is, for the most part, mountainous. There are some valleys which afford good tillable land. Timber is plentiful. The staple productions are corn, wheat and cotton.

Polk county has large deposits of copper and iron ore, the first of which was formerly extensively mined, but owing to litigation the work was some years since suspended. The religious denominations are Baptists, Methodists and Presbyterians. School tax, 20 cents; road tax, 10 cents; for county purposes, 50 cents.

RHEA COUNTY.

Rhea county lies on the northwestern side of the Tennessee River. The county seat is Washington, which has 126 inhabitants. The county in the western part is mountainous, the remainder divided between valleys and low ridges or sometimes knobs. The valley portion of the county is quite fertile. Besides the county seat are the following towns: Roddy, Spring City, Evansville and Dayton. Rhea Springs is a watering town. The Tennessee River furnishes navigation. Other streams are Piney River, Clear, White's and Big and Little Richland creeks. There is great abundance of water power and plenty of good timber. Rhea county contains large deposits of iron and coal. These minerals are mined at several points and give employment to about two hundred men. The agricultural products of the county are corn, wheat, oats, rye, barley, grass, clover, peanuts, sorghum, cotton, tobacco and fruits. Educational institutions are, Tennessee Valley College, Richland and Mar's Hill Academies. The churches are Methodist, Baptist, Presbyterian and Christian. School tax, 15 cents; road tax, 15 cents; county tax, 20 cents.

ROANE COUNTY.

Kingston is the county seat of Roane county and has a population of 858. Rockwood and Oakdale are important mining towns on the Cincinnati Southern Railroad. The topography of the county is similar to that last described though less mountainous. The navigable streams are the Holston and Clinch, which unite at Kingston, forming the Tennessee river, and the Emory. There are numerous smaller streams and abundant water power. The county is well timbered. The valley lands are very productive, growing all the crops common to East Tennessee. Coal and iron are abundant and are extensively mined. Several furnaces are in operation making large quantities of

iron. Marble of very fine quality is also found. Considerable manufacturing is done in the county. Besides the furnaces there is a woolen mill, a hub and spoke factory, and a number of saw and planing mills, giving altogether employment to about 800 hands. There are several good academies and the usual religious denominations. Taxes are: for schools, per $100, 15 cents; for roads, 13 cents; for county purposes, 20 cents.

SCOTT COUNTY.

Scott county lies on the Cumberland Plateau. The soil is generally thin; narrow strips of productive land are found on some of the streams. Huntsville is the county seat and has a population of 116. The principal streams are New River, Elk Fork and White Oak. These streams furnish excellent water power. Timber is very abundant. The Cincinnati Southern Railroad runs through the county. In the tillable lands, corn, wheat and grasses grow well. A large part of the county is well adapted to grazing and fruit growing. Coal exists in large quantities, and when properly developed will add greatly to the wealth of the county.

SEQUATCHEE COUNTY.

Sequatchee county lies upon the Cumberland Plateau, with the Sequatchee Valley passing through its center. Dunlap is the county seat and has 133 inhabitants. Other towns are, Mount Airy and Fillmore. The valley lands are exceedingly fertile, growing the staple productions in abundance. Timber is abundant. Iron and coal are found in large quantities, but for want of transportation are not yet available. The county is watered by Sequatchee River and its tributaries. A railroad, in course of construction, will open up this section, when its minerals will become valuable.

SEVIER COUNTY.

Sevierville is the county seat and has a population of 253. Other towns are, Catlettsburg, Harrisburg and Henderson. Sevier county is largely mountainous, with many coves and beautiful valleys interspersed among the hills. The soil is generally good, and covered with magnificent forest growth. The water courses of this county are the French Broad, Little Pigeon and numerous

smaller streams. Water power is good. The products are corn, wheat, oats, etc. Stock raising receives much attention and grazing is excellent. Sevier county contains abundance of iron ore, but which, for want of transportation, has never been developed.

SULLIVAN COUNTY.

The county seat of Sullivan county is Blountville, with a population of 317. Other towns are Bristol, Paperville, Piney Flats, Union, Kendrick and Fordtown. The county is watered by the Holston and its tributaries, which furnish plenty of water power. The East Tennessee, Virginia and Georgia Railroad passes through the country. Bristol, which is on the Virginia line, is a point of considerable manufacturing and other business. The surface of the county is beautifully undulating and the soil good. The staples of the county are corn, wheat, oats, sorghum, buckwheat, grass and clover. Much attention is given to stock raising. The educational facilities of the county are good, and it has the usual religious denominations. Iron ore of good quality is abundant, and some progress has been made in mining.

UNICOI COUNTY.

This county lies almost wholly in the Unaka Mountain belt, on the North Carolina border. Comparatively little of it is adapted for cultivation, though hid away among the giant Unakas are many beautiful coves and small valleys of great fertility. The county seat is Erwin, which has a population of 150. The county is watered by the Nola Chucky and its tributaries. The scenery in Unicoi is magnificent. There are many picturesque waterfalls and cascades, which will, when the population requires, drive some useful machinery. Among the mountains are stores of valuable minerals which await the requirements of commerce to call them from their hiding places and convert them into useful commodities. Timber is abundant and the coves and mountain sides furnish rich pasturage for numerous flocks and herds.

UNION COUNTY.

Maynardville, with a population of 178, is the county seat. There is no railroad entering the county. The surface of the county is generally hilly, but there are a number of valleys running

through the county, furnishing excellent soil. The county is very well watered by springs and running streams. The principal streams are Powell's River on the northern boundary; Clinch River runs through from east to west. Besides these are a number of creeks which afford excellent water power. The county is well timbered and contains rich deposits of iron ore, which is worked to only a limited extent. There is also a silver-bearing lead ore, zinc and vast quantities of beautiful marble. The principal agricultural products are corn, wheat, oats, grass and clover; much of the arable land of the county is given to meadows and pasturage. Stock is largely raised, which is driven to Knoxville and shipped.

The most numerous among religious denominations are Baptists and Methodists. County taxation on $100: for schools, 20 cents; roads, 15 cents; county purposes 30 cents.

WASHINGTON COUNTY.

This is perhaps the oldest settled county in the State. Jonesboro, the county seat, claims to be the oldest town in Tennessee. Its population is 895. Other towns are, Limestone, Millbrook, Telford, Buffalo, Johnson City, Brownsborough, Carrville and Fall Branch. The East Tennessee, Virginia and Georgia Railroad passes through the county, and the Western and North Carolina Railroad (narrow gauge) has its terminus at Johnson City. The Nola Chucky River runs through the county. There are also numerous creeks, which afford good water power. Timber is abundant. The southern portion of the county is mountainous and the county generally broken. The valleys are fertile and there is much productive upland. Iron ore is found in great abundance. There is also some lead and zinc. Washington county is very largely an agricultural county. Its products are corn, wheat, oats, buckwheat and fruit. There is a fruit-canning establishment at Johnson City. Much dried fruit and poultry are shipped from the county. Some manufacturing is also done. The county has a foundry where agricultural implements are made, and has also many mills propelled by water power.

The prevailing churches are Methodist, Baptist, Presbyterian and Christian. County taxes are, on $100: for schools, 20 cents; roads, 15 cents; county purposes, 30 cents. There is a good academy at Jonesboro.

MIDDLE TENNESSEE.

The portion of the State known as Middle Tennessee embraces the territory lying between the dividing line of East and Middle Tennessee, passing over the central portion of the Cumberland Plateau, and the Tennessee River, where it crosses the southern boundary of the State, and pursuing a northerly course crosses the State line into Kentucky. It includes the great Limestone Basin and the surrounding Highland Rim, or, more properly, Plateau of Middle Tennessee, and a portion of the Cumberland Plateau. The basin is a rich and populous section, more fully developed than most portions of the State. The plateau portion, while generally less fertile, yet has much valuable arable land. The eastern portion contains vast deposits of coal and also iron, while the western part of the plateau is one vast iron field. All portions of this division are bountifully supplied with timber. Limestone of good quality is found almost everywhere, and an excellent marble in some localities. The principal navigable stream is the Cumberland, though there are hundreds of smaller streams, affording abundance of water power. This division contains the following counties, to-wit:

Bedford,	Houston,	Putnam,
Cannon,	Humphreys,	Robertson,
Cheatham,	Jackson,	Rutherford,
Clay,	Lawrence,	Smith,
Coffee,	Lewis,	Stewart,
Cumberland,	Lincoln,	Sumner,
Davidson,	Macon,	Trousdale,
DeKalb,	Marshall,	Van Buren,
Dickson,	Maury,	Warren,
Fentress,	Montgomery,	Wayne,
Franklin,	Moore,	White,
Giles,	Overton,	Williamson,
Grundy,	Perry,	Wilson.
Hickman,	Pickett,	

These will be described separately.

BEDFORD COUNTY.

Shelbyville is the county seat and has a population of 1,869. Other towns are, Wartrace, Bell Buckle, Unionville, Richmond, Flat Creek, Normandy, Fairfield, Palmetto, Hawthorne, Fall Creek, Bedford, Rover and Haley's Station. Its water-courses are Duck River, Spring Creek, North Fork, Garrison Fork, Big Flat, Wartrace, Sugar, Sinking and Thompson's creeks. The surface of the country is diversified with hills and valleys and is very well watered. The soil is of excellent quality. The county is well improved, and as an agricultural county is surpassed by very few counties in the State. It has excellent water power, and is well supplied with timber, such as oak, ash, hickory, poplar, hard maple, beech, walnut, red cedar, etc. The principal agricultural products are corn, wheat, oats, rye, tobacco, cotton and hay. Much attention is given to stock-raising. In the way of manufactures it has one cotton factory and one woolen factory, besides a number of saw mills, planing mills, flouring mills, carriage factories, etc. The capital invested in manufacturing is about $350,000 and number of hands employed 150.

Bedford county is well supplied with schools, the principal one being the Shelbyville Female Institute. The principal religious denominations are Methodist, Baptist, Presbyterian, Cumberland Presbyterian, Episcopalian and Christian. County taxes on $100 are: for schools, 20; for roads, 10 cents; for county purposes, 30 cents. The Nashville and Chattanooga Railroad runs through the county, with branch road from Wartrace to Shelbyville.

CANNON COUNTY

Lies partly in the Basin and partly on the Highland Rim, giving it a varied topography and diversified soils. The county seat is Woodbury, which has a population of 393. Other towns are Newbern and Bradyville. The principal water-courses are Stone's River, Rockhouse, Carpenter's, Lock, Rush and Brawley's creeks. Nearly all of these afford excellent water power. Timber is abundant, consisting of oak, poplar, hickory, walnut, hard maple, beech, elm, locust, chestnut, etc. The principal products are corn, wheat, oats, rye, tobacco and live stock. The principal churches are Methodist, Baptist, Presbyterian, Cumberland Presbyterian and Christian. Cannon county has some good schools and the usual rates of taxation.

CHEATHAM COUNTY.

Ashland City, on the Cumberland River, is the county seat, and has a population of 170. Other towns are, Sycamore, Kingston Springs (a watering place), Pegram's Station, Craggie Hope (a summer resort) and Thomasville. The Cumberland River flows through the county. Other streams are, Harpeth River, Sycamore, Half Pone, Barton, Marrow Bone, Brush and Sam's creeks. These streams afford abundant water power. Timber is plentiful, consisting of oak, ash, elm, hickory, beech, poplar, etc. Iron ore of good quality is found in some localities, but is not mined. The Nashville, Chattanooga and St. Louis Railroad passes through the county. Much of the county is hilly, but the river and creek valleys are very productive. Limestone and sandstone furnish plenty of good building material. The chief productions are corn, wheat, oats, rye, barley and tobacco. There are extensive powder mills and plow factories and lumbering establishments in the county. The capital invested is about $300,000, and the number of persons employed 300. Cheatham county has the usual religious denominations and the ordinary county taxes.

CLAY COUNTY.

This county borders on the Kentucky line. Celina, which lies on the Cumberland River, is the county town, and has a population of ——. Other towns are Butler's Landing and Centerville. The navigable streams are the Cumberland and Obey's rivers. Other water-courses are, Irvin's, Mill and Brimstone creeks. These streams furnish excellent water power. The topography of the county presents a general plain, deeply cut into by numerous valleys. The soil is generally good, and the county well timbered with the usual varieties.

Clay county possesses considerable mineral wealth, iron and petroleum being the principal minerals, though lead and other minerals are found. No mining of importance is done at present. The principal products are corn, wheat, oats, tobacco, grass, clover and live stock. There are several good schools in the county. The principal religious denominations are Methodist, Baptist, Presbyterian, Cumberland Presbyterian and Christian. The taxes levied by the county on $100 are: for schools, 10 cents; for county purposes, 30 cents.

COFFEE COUNTY.

This county lies principally on the highlands or plateau of Middle Tennessee, a small portion only being in the basin. The soil is generally light and sandy, though there are some fertile valleys. Manchester is the county seat. Its population is 438. Other towns are, Summitville, Beech Grove, Hillsboro, Pocahontas, Needmore and Tullahoma, the latter being a summer resort of considerable celebrity. The principal water-courses are Duck River and its tributaries, which afford water power of the finest quality. The county is amply supplied with timber. The principal products are corn, wheat, oats, rye, fruits and live stock. The plateau lands, though not adapted for heavy crops of grain, are well suited for the growth of fruits. The principal educational institutions are the Tullahoma College, the Tullahoma Grammar School, and the Manual School, of Manchester. The Nashville and Chattanooga Railroad passes through the county, and the Manchester and McMinnville Railroad has its terminus at Tullahoma. There are in the county one paper factory, one hub and spoke factory, one file factory, one axe-handle factory, one sash, door and blind factory and one woolen mill. The amount of capital invested is about $250,000, and number of persons employed 200. The prevailing religious denominations are Methodist, Baptist, Presbyterian, Cumberland Presbyterian and Episcopalian. The county taxes are: for schools, 10 cents; for roads, 15 cents; for county purposes, 10 cents.

CUMBERLAND COUNTY

Is mainly on the Cumberland Plateau, but includes a small portion of Sequatchee Valley. Within the county is Crab Orchard Mountain, which rises to an elevation of one thousand feet above the plateau. Some coves and valleys furnish a small area of good arable land. Crossville is the county seat, and has a population of 99. The water-courses are Obed's River, Big Emory, Daddy's Creek and Sequatchee River. The agricultural products are corn, wheat, oats, rye, potatoes, etc. The county is largely pastoral, and much stock is raised on the wild grasses. The plateau lands are well adapted to fruit-raising. The minerals are iron and coal, though these are but little developed. The religious denominations are Presbyterian, Cumberland Presbyterian, Baptist, Christian and Methodist. The county has some good private schools and the usual rates of taxation.

DAVIDSON COUNTY

Lies mostly within the basin, and has a generally fertile soil. Nashville is the county seat and also the capital of the State. The city has a population of 43,350, and is rapidly increasing. Other towns are, Goodlettsville, McWhirtersville, Edgefield Junction, Bellevue, Brentwood and Madison Junction. The Cumberland River, which flows through the county, is a fine, navigable stream. Other water-courses are, Stone's River, White's, Brown's, Richland, Little Harpeth, Mansker's, Marrow Bone and Mill creeks, the most of which afford fair water powers. The timber is oak, elm, birch, poplar, ash, hard maple, walnut, cedar and chestnut. Two main trunk lines of railroad pass through the county, which, with their subordinate roads, give connection with all parts of the world. These trunk lines are the Nashville, Chattanooga and St. Louis Railroad and the Louisville, Nashville and Great Southern Railroad. Nashville has a very large trade with the Western, Southern and Southwestern country. Nashville is largely engaged in manufacturing, having large factories of woolen and cotton goods, ironware, furniture, doors, sash, etc., lumber, agricultural implements, carriages, wagons and other articles. Capital invested in manufacturing estimated at $3,000,000, and number of persons employed at 3,000.

Nashville may justly claim to be the educational center of the South. The Vanderbilt University, the Nashville University, Fisk University, Tennessee Central College, School for the Blind, St. Cecilia Academy, the Baptist Normal and Theological Institute, Ward's School for Young Ladies, Price's School for Young Ladies and other private schools of high order. Besides these are academies at all the villages in the county. The city schools are well sustained, and are perhaps equal in efficiency to any in the United States.

The products of Davidson county are corn, wheat, oats, rye, barley, grass, clover, millet, tobacco, fruits and live stock. No section of the South has given more attention to breeding fine stock than Davidson county. Quite a large business is also done in dairying, and also in raising fruits and vegetables for shipment.

All religious denominations common to the country are found in Davidson county. The M. E. Church, South, and the Cumberland Presbyterian Church have extensive publishing interests

located at Nashville. The State Asylum for the Insane and the State Prison are located at Nashville.

The taxes levied by the county on each $100 are: for schools, 20 cents; for roads, 5 cents, and for county purposes 30 cents.

DICKSON COUNTY

Is situated on the highland plateau. The soil on the uplands of only medium fertility. The river and creek valleys are very rich. The county seat is Charlotte, with a population of ——. Other towns are White Bluff, Dickson and Gillem. Harpeth and Cumberland Rivers form part of the eastern and northeastern boundaries of the county. Other streams are Turnbull, Barton's, Jones', Piny, Yellow, Johnson's and Cedar creeks, which afford excellent water power. Timber is abundant. Iron ore exists in great quantity, but at present is worked only at one point. The Cumberland Furnace is located in the northeastern quarter of the county. Petroleum has also been found on Jones's Creek. About $200,000 are invested in manufacturing, and about 300 persons employed, principally in the manufacture of iron. Good schools are sustained at Dickson, Charlotte, Cloverdale and other points. The usual religious denominations are found. The county taxes on $100, are: for schools, 15 cents; for roads, 10 cents; for county purposes, 30 cents. The Nashville, Chattanooga and St. Louis Railroad passes through the county, and the Nashville and Tuscaloosa Railroad has its northern terminus at Dickson.

DEKALB COUNTY

Lies partly in the basin and partly on the plateau. The soil in the basin is rich, while the plateau land is of lighter quality. Smithville is the county seat, and has a population of 580. Other towns are Alexandria, Liberty and Laurel Hill. Caney Fork River, which is the principal stream, is navigable. Other water courses are Pine, Sink, Hurricane, Holmes, Dry, Eagle, Mine Lick, Fall and Falling Water creeks. Iron ore in considerable quantities is found on each side of Caney Fork, which affords fine water powers. The principal agricultural products are corn, wheat, oats, rye, tobacco, and grasses. Large numbers of live stock are raised in the county. There is one college and a number of academies in the county. There is one cotton factory in the county, and a number of lumber and flouring

mills. Religious denominations are Methodist, Baptist, Presbyterian, Cumberland Presbyterian and Christian. The county taxes are: for schools, 30 cents; for roads, 12½ cents; for county purposes, 30 cents.

FENTRESS COUNTY.

Jamestown, with a population of 86, is the county seat. Other towns, Travisville. Water courses, Wolf River, Obey's River, Clear Fork, Rock Castle, Cable and Poplar creeks. The timber is abundant, consisting of poplar, chestnut, walnut, oak and various other kinds. The minerals are coal and iron in abundance. The agricultural products are corn, wheat, oats, grasses and tobacco, and live stock.

Fentress County lies mainly on the Cumberland Plateau, but embraces some beautiful valleys which are exceedingly fertile. Water power in the county is very good. VanBuren Academy is the principal school in the county. The usual religious denominations are found, and the county has the ordinary rates of taxation.

FRANKLIN COUNTY.

Winchester is the county seat. Its population is —— Other towns are Decherd, Hunt's Station, Cowan, Sherwood and Salem. The county is well watered by the Elk River and its numerous tributaries, which afford magnificent water power. The topography of the county is greatly diversified, a portion of it lying on the Cumberland Plateau, a portion in the valley of Elk River, and another portion on the Highland Rim. Some fertile lands are found along the base of the Cumberland Mountains, and also in the Elk River Valley. The plateau lands are less fertile, but well adapted for fruits and for summer grazing. The county is well timbered. The principal agricultural products are corn, wheat, oats, rye, cotton and live stock. The minerals of this county are coal and marble. Coal is mined to considerable extent, and some marble has been quarried. A number of cotton factories, one woolen factory, one cheese factory, one iron furnace, a number of tanneries and other manufacturing establishments are located in the county. The amount of capital invested is about $250,000, and the number of persons employed is about 300. The religious denominations are Episcopalian, Baptist, Methodist, Presbyterian,

Cumberland Presbyterian and Catholic. There is a normal school at Winchester; also an institute; the University of the South, at Sewanee, and academies at all the towns.

The Nashville and Chattanooga Railroad passes through the county. The Fayetteville Branch Railroad, and the Tennessee Coal and Iron Company's Railroad have their termini in Franklin County. The county taxes are: for schools, 10 cents; for roads, 8 cents, and for county purposes, 25 cents.

GILES COUNTY.

Pulaski is the county seat, and has a population of 2,089. Other towns are Campbellsville, Lynnville, Elkton and Wales. The surface of the county is much diversified. A portion of the county lies on the Highland Plateau, and has a light soil. A large portion, however, lies within the Elk River arm of the central basin, and though intersected by ridges and sometimes rising into hills, has a rich and generous soil. The principal water courses are Elk River and Richland Creek. These streams have numerous tributaries, and furnish considerable water power. The country is well timbered with oak, hickory, ash, beech, sugar tree, elm, maple, poplar, walnut, chestnut and other varieties. The principal agricultural products are corn, wheat, oats, rye, cotton and live stock. Blooded stock is extensively raised in the county. The Louisville, Nashville and Great Southern Railroad passes through the county. Giles College and Martin Female College are located at Pulaski. Other good schools are distributed through the county. There are two cotton factories in the county, and a number of flouring mills. The capital invested is about $200,000, and the number of persons employed, 125. Religious denominations are Methodist, Baptist, Presbyterian, Cumberland Presbyterian, Episcopalian, Christian and Catholic. The county taxes on $100 are: for schools, 10 cents; for roads, 15 cents; for county purposes, 25 cents. Considerable attention is given to grape culture in Giles County, and quantities of wine are made.

GRUNDY COUNTY.

County seat, Altamont; population, 110. Other towns, Tracy City, Pelham, Gruteli and Beersheba (a noted watering place). The water-courses are Elk River, Collin's River, Laurel Creek, Fiery Gizzard, Fire Scald and some other creeks, furnishing fine

water power. The county lies on the Cumberland Plateau, but is deeply serrated with valleys and coves, some of which furnish small bodies of very fertile soil. The general soil of the county is well adapted to fruit-growing, especially the grape. A colony of Swiss settlers are located in this county, and are succeeding well in wine-making and silk-culture. The county is well timbered with white pine, oak, poplar, walnut and other varieties of timber. The cove and valley lands produce corn, wheat, oats, tobacco, etc. The mountain lands produce much grass for pasturage. The minerals consist of iron and coal, the latter of which is very extensively mined at Tracy City, the Tennessee Coal and Iron Co. operating with a capital stock of $3,000,000 and employing 600 hands. This company owns a railroad running from Tracy City to Cowan, where it connects with the Nashville and Chattanooga Railroad. The company is largely engaged in the manufacture of coke. Outside of the coke works the number of persons engaged in manufacturing is estimated at 200.

The religious denominations are Methodist, Baptist, Lutheran, Catholic, Episcopalian and Cumberland Presbyterian. The usual county taxes are levied.

HICKMAN COUNTY.

Hickman county lies mainly on the Highland Plateau, but is intersected by the Duck River and Piney River valleys. The county seat is Centreville, which has a population of 286. Other towns are, Vernon, Pinewood, Beaver Dam and Shady Grove. The water-courses are Duck River, which is navigable during a portion of the year, Piney River, Beaver Dam, Sugar, Swan, Lick, Leatherwood and Cane creeks. Some fine water power is found in the county. Timber in the greater part of the county is abundant, consisting of oak, hickory, chestnut, walnut, poplar and many other varieties. Iron in great abundance is found, and is mined to considerable extent, about 300 hands being employed. The principal agricultural products are corn, wheat, oats, peanuts and live stock. A large cotton factory is located at Pinewood. About $250,000 are invested in manufacturing, and about 400 persons are employed. There is an academy at Centreville, and a number of good schools in the county. The prevailing religious denominations are Methodist, Baptist, Christian and Cumberland Presbyterian. The county taxes on $100

are: for schools, 10 cents; for roads, 15 cents; for county purposes, 30 cents. The Nashville and Tuscaloosa Railroad, in course of construction, passes through the county.

HOUSTON COUNTY.

Houston County lies on the Memphis branch of the Louisville and Nashville Railroad. The county seat is Erin, which has a population of 485. Other towns are Danville, Cumberland City, Arlington and Stewart Station. The Tennessee River forms the western boundary of the county. Other streams are Wells Creek, Guices, White Oak, Cane, Hurricane and Yellow Creek. The surface of the county is much broken by narrow valleys and by the Tennessee Ridge, which crosses the county from north to south. The soil of the valleys is very rich, that of the ridges is lighter, but well adapted for grasses and for fruit. The timber is abundant, presenting the usual varieties. Iron ore is in large quantity, marble, hydraulic limestone and fire clay is also found. Yellow and White Oak creeks afford good water-power. Excellent limestone abounds, and large quantities of lime are shipped to various parts of the country. The agricultural products of the county are corn, wheat, oats, grass, clover, live stock, etc. There are good schools at Arlington, Erin and Tennessee Ridge. The usual religious denominations are found in this county, and the usual taxes are levied.

HUMPHREYS COUNTY

Lies on the Nashville, Chattanooga and St. Louis Railroad. Tennessee River forms its western boundary, while Duck River flows through the county. Other streams are Buffalo River, Blue Creek, Trace Creek, Hurricane, Tumbling, White Oak, Big and Little Richland creeks. The face of the country is diversified with plateau, ridge and valley lands. The soil varies greatly from fertile to poor. Duck River Valley is one of the most fertile in the State. Timber is abundant, and is of excellent quality. There is good water power on some of the streams. There are good schools at Waverly, the county seat, and at other points. Waverly has a population of 510. Other towns in the county are Johnsonville, McEwen, Hurricane Mills, Bakerville and Cuba. Some iron ore is found in the county, but has not been developed. There is a woolen mill and a hub and spoke factory in the county. About $30,000

are invested and 50 hands employed in manufacturing. Large quantities of tanbark (chestnut oak) are annually shipped from the county. The principal agricultural products are corn, wheat, oats, peanuts, tobacco and live stock. The churches are Baptist, Methodist, Presbyterian, Christian, Cumberland Presbyterian and Catholic.

The county taxes per $100 are: for schools, 10 cents; for roads, 10 cents, for county purposes, 30 cents.

JACKSON COUNTY.

Gainesboro, the county seat, is situated on the Cumberland River, and has a population of 352. Other towns are Granville, Mayfield, Gladdice, Meigsville, and Whitleyville. The Cumberland River flows through the county. Numerous tributaries, the principal of which is Roaring River, furnish abundance of water, and good water power. The county is divided into plateau, ridges and valleys. The valleys are rich, the ridges medium and the plateau lands light. The county has an abundance of fine timber, embracing all the usual varieties. The principal agricultural products are corn, wheat, oats, rye, tobacco and live stock. There are some good private schools in the county; also, a number of small manufacturing establishments, in which some $50,000 capital are invested, and furnishing employment to about 50 hands. The usual religious organizations are found in this county.

LAWRENCE COUNTY.

Lawrenceburg is the county seat; population, 503. Other towns, Summertown, Henryville, Wayland Springs, West Point, and St. Joseph. The county is principally situated on the Middle Tennessee plateau. It has numerous streams, the principal of which are Buffalo River, Shoal Creek, Factory, Chisholm, Knob, Blue Water, Sugar and Butler's Creeks, on many of which there is excellent water power. The minerals are marble and iron, the latter of which is found in vast quantities. Iron is mined at only one point. Napier's furnace in the northern part of the county, gives employment to about 150 hands. Timber is abundant and excellent. The principal agricultural products are corn, wheat, oats, rye, peanuts, fruits and live stock. Grape culture is attracting considerable attention.

There are academies at Lawrenceburg, Chinnbee, Wayland Springs and Summertown.

Lawrence County has one woolen factory and seven cotton factories, with capital of about $600,000, and employing about 250 hands. The usual religious organizations prevail in the county. County taxes per $100 are: for schools, 10 cents; for roads, 10 cents; county tax, 10 cents.

LEWIS COUNTY.

Newburg is the county seat. Its population is 373. The county is a high rolling plateau. The soil is generally thin, but there is some good land in the valleys. The principal streams are Buffalo River, Swan, Cane, Rock House, Grinder's Brush, Chiefs, Cathey's and Bigby creeks. These streams afford superb water-power. The timber is principally black-jack, post oak and chestnut oak. There are numerous large deposits of iron, which, however, is not mined. The agricultural products are corn, wheat, oats, peanuts, etc. The religious organizations are Methodist, Baptist, Cumberland Presbyterian and Christian.

LINCOLN COUNTY.

Fayetteville is the county seat; population, 2,104. Other towns are Petersburg, Molino, Mulberry, Oak Hill, Lincoln and Blanche. The water courses are Elk River, Bradshaw, Swan, Cane, Norris, Mulberry, Roundtree, Tucker, Farris, Shelton, Duke's, Stewart's, Coldwater and Kelley's creeks. Water power is abundant. Timber is plentiful, consisting of hickory, chestnut, mulberry, oak, poplar, beech, sugar tree and walnut. Marble of very handsome appearance exists, and has been quarried to a limited extent.

The surface of the county is diversified. A belt along the Alabama line is plateau land and the soil is thin. The remainder of the county is divided into valleys and hills with generally an excellent soil. The principal agricultural products are corn, wheat, oats, rye, cotton, grasses and live stock, being one of the best stock counties in the State. There is a college and a female academy at Fayetteville. Academies at Oak Hill, Petersburg, Mulberry, Lincoln, and other points. There is one cotton and one woolen factory, and a number of smaller manufacturing establishments in the county. The capital in-

vested is about $300,000, and number of hands employed 600. The principal religious denominations are Methodist, Baptist, Christian, Associate Reformed and Covenanters.

The usual county taxes are levied. The Fayetteville branch of the Nashville and Chattanooga Railroad, and the Duck River Valley Railroad, have their termini at Fayetteville.

MACON COUNTY.

Macon County lies mainly on the rim or plateau. The county seat is Lafayette; population, ——. Other towns are Hillsdale and Hayesville. Red Boiling Springs is a watering place of note. On the plateau, the soil is generally thin, but in the southern part of the county, which lies within the basin, it is rich. The water-courses are Goose, Dixons, Long, Puncheon, White Oak, Salt Lick, Line and a number of other creeks affording ample water power. The timber consists of hickory, oak, chestnut, poplar, beech, walnut, hard maple and other varieties, and is abundant. There is some iron ore in the county, but its extent has not been developed. The principal agricultural products are corn, wheat, oats, rye and tobacco. There is little manufacturing in the county beyond milling and lumbering. There are good private schools at various points in the county. The various religious denominations common to the State exist in the county. The usual county taxes are levied.

MARSHALL COUNTY.

County seat, Lewisburg; population, 460. Other towns, Chappel Hill, Cornersville, Farmington, Mooresville and Belfast. Water courses, Rock, Flat, Caney Spring, Richland, Bradshaw, Swan and Robinson's Fork creeks and Duck River. The river and some of these creeks afford fine water power. The surface of the country is diversified, and the soil generally fertile. The agricultural products are corn, wheat, oats, rye, grasses, cotton and live stock. Timber is abundant, consisting of oak, chestnut, poplar, walnut, beech, elm, cherry and large quantities of red cedar. Little attention is given to manufacturing. There is a female academy at Lewisburg, and other schools located in different portions of the county. The usual Protestant religious denominations are found in the county. County taxes: for roads, 5 cents; for county purposes, 30 cents;

special tax, 30 cents on $100. The Duck River Valley Railroad passes through the county.

MAURY COUNTY.

Columbia is the county seat and has a population of 3,400. Other towns are Williamsport, Mt. Pleasant, Santa Fe, Spring Hill, Culleoka, Bigbyville, Neapoli, and Hampshire. The water-courses are Duck River, Fountain, Bigby, Silver Knob, Carter's, Snow, Rutherford, Globe, Leiper's and Cathey's creeks. Some of these afford very considerable water power. The surface of the country is generally level or undulating, but at some points broken into hills. The soil is excellent, and produces heavy crops of corn, wheat, oats, rye, grasses, clover and cotton. The county is noted for its large production of fine stock, and for its fine fruit and dairy product. There are a number of manufacturing establishments, employing about $200,000 capital and 200 hands. The religious denominations are Methodist, Baptist, Presbyterian, Cumberland Presbyterian, Christian, Associate Reformed, Episcopal and Catholic.

The county taxes are: for roads, 12 cents; for county purposes, 25 cents per $100. The Louisville, Nashville and Great Southern Railroad passes through the county. The Duck River Valley Railroad, and the Nashville and Florence Railroad have their termini at Columbia.

Columbia has a female institute and Athenæum, and academies and seminaries are found at every village and neighborhood in the county. In the western part of the county some iron ore is found.

MONTGOMERY COUNTY.

Clarksville, the county seat, has a population of 3,860. It is situated on the Cumberland River, and on the Memphis branch of the Louisville and Nashville Railroad. Other towns are Palmyra, Hampton, Ringgold, Dotson, Shiloh and numerous other villages. The water-courses are Cumberland River, Red River and their numerous tributaries, which furnish considerable water power. Montgomery County lies on the Highland Plateau, but the streams mentioned have carved out valleys, which contain quite considerable areas of soil of like character with the rich basin lands. Much of the plateau land is also of excellent quality, though some portions are poor. The surface

of the country is greatly varied with valleys, plateaus and ridges. Iron ore is abundant, and a number of furnaces were formerly operated, but for various reasons they have all suspended. The agricultural productions are corn, wheat, oats, rye, grasses, tobacco and live stock. Montgomery County has one university and many schools of high character. Its religious denominations are Methodist, Baptist, Presbyterian, Cumberland Presbyterian, Episcopalian, Christian and Catholic.

Clarksville has considerable manufacturing enterprise. The county taxes are: for schools, 20 cents; for roads, 10 cents; for county purposes, 20 cents per $100.

MOORE COUNTY.

Lynchburg is the county seat. It has a population of 345. Other towns are Charity, Marble Hill and County Line. The county is drained by Elk River and its tributaries, and has plenty of water power. Timber is abundant, consisting of oak, hickory, walnut, poplar, sugar tree, chestnut, etc. Marble of fair quality is found in the county.

The principal agricultural products are corn, wheat, oats, rye, barley, grasses and live stock. The surface of the country is greatly diversified, part of the county lying within the basin and part upon the plateau. Elk Ridge, which divides the waters of Duck and Elk Rivers, runs through the county. The basin and ridge lands are fertile, but the plateau lands are poor. Lynchburg has a male and female institute. Other schools are located in the county. The religious denominations are Methodist, Baptist, Christian and Cumberland Presbyterian. The county levies the usual taxes.

OVERTON COUNTY.

The county seat is Livingston, which has a population of 312. Other towns are Monroe, Oak Hill, Olympus and Hillham. The water courses are Roaring River, Obey's River, Flat, Matthew's and Nettle Carrier Creeks. The county lies largely on the foothills of the Cumberland Mountains and is deeply serrated with coves and valleys. Where these are of sufficient extent for farms the soil is rich and productive. Water power is excellent and timber abundant, consisting of oak, ash, hickory, poplar, walnut, etc. Coal and iron both exist in large quantities

though but little developed. The principal agricultural products are corn, tobacco, wheat, oats, the grasses, clover and stock. There is an academy at Livingston and a good school at Pond Ridge. All the usual religious denominations are found in the county and the ordinary county taxes are levied.

PERRY COUNTY

Lies in the western portion of Middle Tennessee—the Tennessee River forming its western boundary. It is traversed by Buffalo River and by a large number of creeks which fall into the Buffalo and Tennessee Rivers. These streams afford plenty of water power. The face of the county is greatly diversified with ridges and valleys. The valleys are fertile, while the ridges generally have light soil. The timber is abundant, consisting of beech, ash, oak, chestnut, poplar, hickory, walnut, etc. Iron ore exists in large quantities, but is not at present mined. Linden is the county seat. Its population is 189. Other towns are Lobelville, Britt's Landing, Bardstown and Farmer's Valley. The principal products are corn, cotton, wheat, oats, grasses, peanuts and stock. There are various private schools of good character in the county. The ordinary county taxes are levied. The religious denominations are those prevailing in the State.

PUTNAM COUNTY.

Topographically this county is very much like Overton county. The soil, timber and agricultural products are very similar. The county site is Cookeville, which has 279 inhabitants. Other towns are Bloomington, Selby, Pekin, and Double Springs. The water courses are, Obey's River, Spring Creek, Calf Killer and Falling Water. Coal is mined for domestic use, about fifty persons being engaged in the business. Iron exists also in abundance. There are in the county three academies and various private schools. About 200 hands are employed in various kinds of manufactures. The religious denominations are Baptist, Methodist, Cumberland Presbyterian and Christian. The county taxes are, for schools, 20 cents on the $100; for roads, 10 cents; county purposes, 30 cents.

PICKET COUNTY.

This is a newly organized county lying on the Kentucky line and on the western base of the Cumberland Plateau. The coun-

ty seat is Byrdstown, which has —— inhabitants. The face of the county is much broken with mountain spurs and intervening valleys and coves. The valleys and coves are very fertile. The timber is abundant and of excellent quality. Good water power is also plenty. The county is well watered by Wolf and Obey rivers and their tributaries. Coal and iron are among the minerals of this county. The local institutions are similar to those of surrounding counties.

ROBERTSON COUNTY.

Springfield is the county seat. Population, 354. Other towns are, Cross Plains, Cedar Hill, Cooper Town, Turnersville, Black Jack and Barren Plains. The surface of the county is generally undulating or broken. In the southern and northern portions there is much level land.

The water courses are Red River, Elk Fork, Buzzard, Sulphur Fork, Miller's, Sycamore and Carr's Creeks. Water power is good. Timber, such as ash, oak, poplar, chestnut, etc. The principal agricultural products are corn, wheat, oats, tobacco, grasses, clover and stock. There are a number of good schools in the county. All the churches usually found in Tennessee have organizations in the county.

The taxes levied by the county are, for schools per $100, 10 cents; road tax, 15 cents; county purposes, 40 cents.

The St. Louis and Southeastern Railroad passes through the county.

RUTHERFORD COUNTY.

Murfreesboro is the county seat; population, 3,800. Other towns are Lavergne, Smyrna, Florence, Henderson, Milton, Russel, Salem, Winsted, Beverly, Readyville, Carlocksville, Versailles and Unionville. The water courses are Stone's River, Cripple, Bradley's Fall, Spring, West Fork, Lytle's, Long, Overall's, Stuart's, and Henderson Creeks. Nearly all of these streams furnish good water-power. Timber is good, consisting of hickory, ash, oak, elm, poplar, cedar, lynn, etc. The surface of the county is generally level or gently undulating, and the soil good. The principal agricultural products are cotton, corn, wheat, rye, oats, etc.

The principal educational institutions are the Union University, Soule Female College, and Murfreesboro Female

Institute, besides good schools in all the villages. About $150,000 are invested in manufacturing industries, giving employment to one hundred hands. The principal religious denominations are Methodist, Baptist, Presbyterian, Christian and Episcopalian. County taxes per $100: for schools, 10 cents; for roads, 5 cents; for county purposes, 18 cents. The Nashville and Chattanooga Railroad passes centrally through the county.

SMITH COUNTY.

County seat, Carthage, population, 327. Other towns, Rome, New Middleton, Dixon Springs, Gordonsville, Chestnut Mound, Grantville and Montrose.

Navigable streams, Cumberland and Caney Fork Rivers. The County is well watered by many smaller streams. Water-power is abundant. Timber plenty, consisting of oak, hickory, chestnut, poplar, beech, walnut, hard and soft maple, etc. The surface of the county is broken, containing many hills and valleys, with a generally rich soil. The principal agricultural products are corn, wheat, oats, rye, grass, clover, tobacco and stock. There are a number of good schools in the county. The county taxes are: For schools, 20 cents; for roads, 10 cents, and for county purposes, 25 cents on the $100. The various churches common to the State are well represented in Smith County.

STEWART COUNTY.

This county lies upon the Kentucky line, and is bounded on the west by the Tennessee River, while the Cumberland River passes through it. The Memphis Branch of the Louisville and Nashville Railroad passes through its southeastern corner. Dover is the county seat, and has a population of 317. Other towns are Tobacco Port, Lime Port, Indian Mound, Big Rock and Cumberland City. The county is well watered by numerous tributaries of the Tennessee and Cumberland Rivers, and has abundant water-power. The surface of the county is broken and hilly except in the northeastern quarter which is more level. The Tennessee ridge which extends across the county between the two rivers, is a notable feature in the topography of the county. Much of the county has a fertile soil, while other portions are inferior. Timber is abundant and of excellent quality. Iron ore is found in great abundance and is ex-

tensively mined, two iron furnaces being in operation in the county, and giving employment to about 1,200 hands. The capital invested in these operations is about $500,000. The principal agricultural products are corn, wheat, oats, rye, grasses and tobacco.

There are a number of good private schools in the county. The religious denominations are Methodist, Baptist, Presbyterian, Cumberland Presbyterian and Christian. The county taxes are: For schools, 25 cents; for roads, 10 cents, and for county purposes, 30 cents per $100.

SUMNER COUNTY.

Gallatin is the county-seat. Its population is 1,938. Other towns are Pleasant Grove, Hendersonville, Saundersville, Mitchellsville, Brackentown, Bethpage, Worsham and Castalian Springs—a watering place. About half the county lies in the central basin, and the remainder on the Highland Rim. The portion within the basin has an excellent soil. On the highlands, though the soil is not so uniformly good, there are some good farming lands.

The agricultural products are corn, wheat, oats, rye, tobacco, grasses, and clover. Within the last few years much attention has been given to the cultivation of potatoes for shipment to northern markets, and the business has been found to be highly remunerative. Sumner County has long been famous for the attention given to the rearing of fine stock.

The Cumberland river forms for a considerable distance the southern boundary of the county. Other streams are Garrett's Creek, Bledsoe Creek, Trammel Creek and Caney Fork. These streams afford some good water power. Timber of good quality is abundant. Marble is said to be found in the county. There are in the county two woolen factories, one cotton factory, two carriage factories, one agricultural implement factory and twelve wagon factories, with an aggregate capital of $350,000 giving employment to 500 hands. The principal religious denominations are Presbyterian, Catholic, Methodist, Christian, Baptist and Cumberland Presbyterian. The Louisville and Nashville Railroad passes through the county. The usual county taxes are levied.

TROUSDALE COUNTY.

This county lies within the central basin but presents a broken

and hilly surface with very rich soil. Hartsville is the county seat and has a population of 604. Other towns are Dixon Springs and Enon College. The Cumberland River forms the southern boundary. Other streams are Goose Creek, with its various branches. Water power good. The agricultural products are corn, wheat, oats, rye, grass, clover, etc. There are in the county two academies and a number of good private schools. The usual religious denominations prevail. The county taxes are, for schools, 20 cents; for roads, 15 cents; for county purposes, 30 cents per $100.

VAN BUREN COUNTY

Lies upon the Cumberland Plateau and upon the mountain spurs and intervening coves and valleys. It has all the characteristics of that section of the State; the thin, sandy soil of the Plateau, and the rich, productive soil of the valleys and coves. Spencer is the county seat and has a population of 217. The water courses are Caney Fork and Rocky Rivers and Cane and Laurel Creeks. These streams afford excellent water power. Timber exists in large quantities and of good quality. Coal and iron ore are also abundant. The agricultural productions are corn, wheat, oats, rye, grasses, clover, etc.

The principal educational institution is Burritt College, though there are a number of good schools in the county. The usual county taxes are levied.

The principal religious denominations are Methodist, Baptist, Presbyterian and Christian.

WARREN COUNTY.

County seat, McMinnville; population, 1,244. Other towns are Viola, Vervilla, Trousdale, Jacksboro, Dibrell, and Clarmont.

Water courses: Collins River, Rocky River, Caney Fork, Barren Fork, Mountain, Laurel, Charles, Cane and Hickory Creeks. The water power on these streams is excellent. A portion of the county lies on the Cumberland Plateau and has the characteristics of that section. The larger portion lying west of the Plateau has a rich, red-clay soil and is very productive. Timber is abundant. The principal agricultural products are corn, wheat, oats, tobacco, cotton, rye, grass, clover, fruit, etc. Much stock is raised in the county. There is an academy at Mc-

Mimnville, and good schools at various localities. There are in the county four cotton factories, one woolen factory, a number of tanneries, etc. The capital invested is $350,000 and number of persons employed, 400. The principal churches are Methodist, Baptist, Presbyterian and Christian. The county taxes are, for schools, 8 cents; for roads, 5 cents; for county purposes, 20 cents per $100.

The McMinnville and Manchester Railroad passes through the county.

WAYNE COUNTY

Lies on the western portion of the Middle Tennessee Plateau. The surface is much cut with ravines and valleys. The general character of the soil is poor, but the valleys afford a soil of great fertility. The county seat is Waynesboro, which has a population of 236. Other towns are Clifton and Ashland. The county touches the Tennessee River on its northwestern part. Other streams are Buffalo and Green Rivers, Indian, Cypress, Mill, Forty-eight, Hardin, Butler and Beech Creeks. Timber is very abundant and of great excellence. The minerals are iron in large quantities, hydraulic limestone and marble. The principal crops raised are corn, wheat, oats, rye, cotton and peanuts. Much of the land in Wayne county is well suited for grazing and considerable stock is raised.

There are good private schools in various localities. The usual county taxes are levied. The religious organizations are Methodist, Presbyterian, Baptist and Christian.

WHITE COUNTY.

Sparta, which has a population of ——, is the county seat. Other towns are Bunker Hill, Stone Fort, Yankee Town and Key.

The water courses are Caney Fork River, Calf Killer, Cherry, Plum, Wildcat, Towns, Post Oak, Fletcher's and Falling Water creeks. These streams furnish excellent water power. Timber is abundant. The county is divided between mountain, barren and valley lands, the latter of which only can be regarded as fertile. The productions are corn, wheat, oats, rye, grass, clover, fruit, stock, cotton and tobacco.

The principal educational institutions are Nourse Seminary, Greenwood Seminary and Lion Institute. The county taxes are,

for schools, 15 cents; for roads, 10 cents, and for county purposes, 30 cents on the $100.

The religious organizations are Methodist, Presbyterian and Christian.

The McMinnville and Manchester Railroad, in its Sparta extension, has entered the southern border of the county.

WILLIAMSON COUNTY.

County seat, Franklin; population 1,632. Other towns are Hillsboro, Bethesda, College Grove, Triune, Nolensville, Brentwood, Peytonsville, Thompson's, Williamsburg, Arrington and Boston.

The water courses are Harpeth River with its various branches, which water the entire county and furnish good water power. The county lies mainly within the Basin and has an excellent soil. The surface of the county is generally undulating, sometimes rising into hills and knobs.

The productions are corn, wheat, oats, rye, barley, grass, clover, cotton, fruits and stock. A great deal of interest is taken in blooded stock. Williamson county is well supplied with schools of high character—the principal of which is the Franklin Female College. The county is well supplied with Protestant churches and has a Catholic Church at Franklin.

The county taxes are, for schools, 10 cents; for roads, 8 cents; for county purposes, 25 cents on the $100.

The Louisville, Nashville and Great Southern Railroad passes centrally through the county. The county is well supplied with timber.

WILSON COUNTY.

Lebanon is the county seat. Its population is 2,296. Other towns, Beckwith, Rural Hill, Laguardo, Camperton, Austin, Statesville, Gladeville and Greenvale. The Cumberland River forms the northern boundary of the county. Other streams are Cedar, Spring, Barton, Spencer, Cedar Lick, Stone's, Suggs, Hurricane and Fall Creeks. The county lies within the basin and has a fertile soil. The surface is diversified with hills and valleys.

The productions are corn, wheat, oats, rye, barley, grass, clover, fruits and stock. There is a barrel and stave factory at Lebanon. Cumberland University is located at Lebanon, besides academies and seminaries at various points.

The Tennessee and Pacific Railroad runs from Nashville to Lebanon.

The principal religious denominations are Baptist, Cumberland Presbyterian, Christian and Methodist.

The county taxes are, for schools, 15 cents; for roads, 10 cents; for county purposes, 25 cents on the $100.

MIDDLE TENNESSEE

TABLE No. 1.

Showing Total Area of each County, Quantity of Improved Land, Average Value per Acre of Improved Land in the County Population and Value of Property Assessed for Taxes.

COUNTY.	Total Area.	Improved Land	Population.	Total Value of Property Assessed for Taxes	Average Value of Land Assessed for Taxes.
Bedford	332,800	203,511	26,027	$5,183,560	$14 07
Cannon	140,800	75,682	11,859	1,258,480	7 00
Cheatham	236,800	14,886	7,955	837,553	5 53
Clay	166,400	45,247	6,987	954,896	4 46
Coffee	192,000	78,792	12,894	1,359,630	4 25
Cumberland	141,600	15,869	4,538	381,141	80
Davidson	320,000	167,387	79,137	23,916,290	31 23
DeKalb	192,000	76,308	14,814	1,015,416	3 12
Dickson	403,200	63,377	12,460	1,627,667	7 19
Fentress	320,000	41,717	5,941	337,266	69
Franklin	377,600	99,272	17,178	1,767,417	3 98
Giles	377,600	194,479	36,016	4,587,977	8 82
Grundy	256,300	15,485	4,592	429,800	1 62
Hickman	390,400	76,215	12,093	1,142,336	3 10
Houston	166,400	21,660	4,295	1,581,730	3 77
Humphreys	288,000	57,432	11,379	399,844	2 66
Jackson	179,200	63,441	12,008	1,094,198	5 72
Lawrence	377,600	50,352	10,383	944,739	2 29
Lewis	230,400	12,399	2,181	243,901	1 64
Lincoln	345,600	172,741	26,960	3,822,460	8 11
Macon	179,200	64,342	9,274	835,241	4 11
Marshall	224,000	132,513	19,260	3,030,370	11 32
Maury	367,600	242,240	39,945	8,125,190	12 83
Montgomery	345,600	150,609	28,461	4,850,930	7 09
Moore	172,800	41,890	6,233	636,453	7 54
Overton	345,600	80,813	12,153	657,246	2 61
Perry	256,000	37,172	7,174	242,984	3 43
Putnam	294,400	65,339	11,501	965,270	3 76
Robertson	320,000	165,902	18,862	3,117,670	8 21
Rutherford	377,600	213,457	36,741	6,713,700	13 04
Smith	230,400	127,110	17,799	2,933,000	12 05
Stewart	320,000	56,960	12,690	1,127,384	4 03
Sumner	339,200	173,627	23,625	4,160,955	9 57
Tronsdale	115,200	44,657	6,646	539,521	11 10
VanBuren	217,600	19,003	2,933	237,132	1 81
Warren	281,600	100,524	14,079	1,713,304	5 03
Wayne	473,600	59,056	11,301	1,110,740	2 62
White	281,600	77,163	11,176	1,120,794	3 78
Williamson	345,600	177,050	28,313	5,599,952	12 02
Wilson	262,400	196,180	28,748	5,075,380	11 00

LIVE STOCK.

TABLE No. 2.

Showing Total Number of Live Stock in each County.

COUNTIES.	HORSES AND MULES.	CATTLE.	SHEEP.	HOGS.
Bedford	11,426	14,188	16,020	46,252
Cannon	4,839	6,367	6,327	27,917
Cheatham	2,421	4,250	3,107	14,514
Clay	2,104	2,684	4,693	12,708
Coffee	4,024	5,866	7,335	20,809
Cumberland	1,138	4,498	6,612	15,990
Davidson	9,982	14,953	14,435	32,749
DeKalb	4,477	10,995	7,057	27,796
Dickson	3,760	7,970	5,640	22,670
Fentress	1,505	5,403	5,231	12,971
Franklin	4,584	7,906	6,296	25,379
Giles	11,123	15,126	12,651	46,762
Grundy	767	2,252	2,006	7,763
Hickman	4,688	7,779	8,568	25,464
Houston	1,275	2,436	2,242	7,872
Humphreys	3,808	7 548	6,930	22,062
Jackson	3,479	6,495	6,727	22,324
Lawrence	2,742	5,663	6,310	18,936
Lewis	750	1,471	1,923	4,267
Lincoln	9,325	14,090	11,969	42,415
Macon	3,247	4,833	6,031	15,866
Marshall	9,344	9,808	10,118	37,815
Maury	15,999	15,421	19,066	53,851
Montgomery	6,849	8,690	7,518	40,393
Moore	2,350	3,160	2,741	10,997
Overton	3,722	8,957	10,044	32,816
Perry	2,462	4,806	4,799	16,764
Putnam	3,406	5,645	7,556	2,107
Robertson	6,581	6,824	7,697	28,528
Rutherford	13,944	16,526	14,481	45,775
Smith	7,085	8,623	10,234	31,187
Stewart	3,931	7,015	4,707	22,945
Sumner	9,607	13,423	16,729	31,187
Trousdale	2,845	3,397	3,799	10,825
VanBuren	818	2,190	2,632	8,558
Warren	4,548	6,815	8,048	21,913
Wayne	3,700	7,990	9,405	22,078
White	3,625	8,208	6,003	22,654
Williamson	11,442	12,906	15,809	43,132
Wilson	15,502	16,285	18.795	49,583

PRODUCTION OF CEREALS.

TABLE No. 3.

Showing the Cereal Productions in Bushels, by Counties.

County.	Barley.	Buck Wheat.	Corn.	Oats.	Rye.	Wheat.
Bedford	108	.....	1,682,358	87,408	6145	257,425
Cannon	.....	122	821,012	22,802	6985	94,150
Cheatham	.....	.....	457,189	42,297	96	18,036
Clay	.....	.....	412,287	15,205	1901	34,424
Coffee	.....	207	658,293	34,160	4040	58,155
Cumberland	.....	247	127,636	10,826	3418	2,797
Davidson	3830	326	1,436,582	133,807	3939	157,530
DeKalb	149	.....	863,207	21,202	4043	75,803
Dickson	30	117	616,422	50,735	555	45,318
Fentress	.....	275	210,416	15,524	1282	11,092
Franklin	1110	84	475,293	71,980	1282	135,816
Giles	.....	.....	1,545,605	33,289	5020	190,205
Grundy	.....	28	114,758	8,507	654	7,855
Hickman	192	165	828,117	42,488	1221	37,491
Houston	.....	.....	231,311	13,846	.....	9,062
Humphreys	.....	.....	826,941	24,521	177	25,371
Jackson	.....	.....	683,019	28,714	4153	40,294
Lawrence	173	55	434,215	30,097	1684	43,331
Lewis	183	.....	114,010	4,808	281	4,824
Lincoln	1070	213	1,252,919	37,909	1641	275,463
Macon	.....	.....	436,804	34,581	1338	31,495
Marshall	165	.....	1,176,536	59,567	2051	172,584
Maury	6270	.....	2,177,071	91,452	1513	271,592
Montgomery	400	.....	1,236,561	86,026	1154	148,534
Moore	300	.....	327,956	14,739	992	66,866
Overton	.....	82	550,091	32,953	2931	400,151
Perry	125	.....	423,461	23,874	565	16,051
Putnam	.....	58	511,610	24,160	3289	42,033
Robertson	2472	.....	793,702	115,678	311	134,426
Rutherford	590	87	1,590,855	74,794	3793	172,997
Smith	688	.....	1,071,050	47,240	3228	104,945
Stewart	.....	70	778,404	26,629	99	34,855
Sumner	759	47	917,940	95,081	3708	140,895
Trousdale	84	.....	396,384	26,197	878	37,284
VanBuren	.....	.....	139,070	6,008	492	13,007
Warren	.....	54	670,848	51,613	2173	66,163
Wayne	68	.....	583,305	27,442	2514	40,038
White	.....	48	637,143	24,811	2837	44,653
Williamson	499	.....	1,439,445	585,522	2265	315,966
Wilson	1226	.....	1,806,262	132,506	4869	188,540

WEST TENNESSEE.

The portion of the State lying between the Tennessee and the Mississippi rivers, and known as West Tennessee, has already been described in its general geological and topographical features. This section, with fewer mineral resources than either East or Middle Tennessee, possesses, in its agricultural advantages, the elements of a boundless prosperity. Its timber, its soil, with its adaptation to the production of almost every article needful for man, mark it as a region of country calculated for the support of a dense population. The counties are:

Benton,	Hardeman,	Madison,
Carroll,	Hardin,	McNairy,
*Chester,	Haywood,	Obion,
Crockett,	Henderson,	†Perry,
Decatur,	Henry,	Shelby,
Dyer,	Lake,	Tipton,
Fayette,	Lauderdale,	Weakley.
Gibson,		

These will now be described separately.

BENTON COUNTY.

Camden is the county seat; population 200. Other towns: Chaseville, Coxburg, Big Sandy, West Danville and Eva. Topography, broken and hilly, intersected with river and creek bottoms.

Soil: Hills argillacious, bottoms sandy and black loam.

Navigable streams: Tennessee River forms Eastern boundary for forty-four miles.

Other streams: Morgan's Creek, Eagle Creek, Byrdsong Creek, Cypress Creek, Harman's Creek, Crooked Creek, Lick Creek, Cotton's Creek, Ramble Creek, Rushing's Creek and Sugar Creek.

Water power: Sandy River is good. Other streams for part of the year.

*Recently organized.
†Lies east of Tennessee River, but is included in the district of West Tennessee.

Railroads: N., C. & St. L., and Memphis & Louisville pass through the county.

Timber: Abundant, oak, poplar, hickory, gum, beech, cypress and other varieties.

Minerals: Some iron near the Tennessee River, and marble on Byrdsong Creek, but both undeveloped.

Principal agricultural products: Corn, wheat, oats, hay, cotton, tobacco, Irish potatoes, sweet potatoes, rye and peanuts.

Manufactures: One tobacco factory, with capital of $10,000, employing 15 hands.

Educational institutions: Academy at Camden.

Religious denominations: Methodist, Baptist, Cumberland Presbyterian and Christian.

Taxes: The rate of tax for county purposes is 20 cents per $100; school tax, 10 cents; road tax, 10 cents.

CARROLL COUNTY.

Carroll county is abundantly supplied with timber of excellent quality, consisting of hickory, oak (all varieties), poplar, gum, beech, &c.

There is a plow factory at Trezevant, a number of saw and planing mills, at various points, and flouring mills, &c.

The general topography of the county is undulating and broken, with considerable plateaus of comparatively level country.

The county is very well watered with numerous creeks, among which are Big Sandy, with numerous tributaries in the eastern part of the county, having a general northern direction, and emptying into the Tennessee River. The other principal streams are Rutherford's and South Fork of Obion River, Ready, Beaver, Gwinn's, Crooked and various other creeks, which, uniting in the western half of the county, form the Obion River, affording, in their courses, numerous mill sites.

The agricultural productions of the county are greatly diversified, consisting of corn, wheat, oats, hay, cotton, tobacco, Irish potatoes, sweet potatoes, sorghum and rye.

The educational institutions are, Trezevant High School, McKenzie College, Bethel College (also at McKenzie), Huntingdon High School, West Tennessee Seminary (at Hollow Rock), Macedonia Academy, Buena Vista Academy and Clarksville Academy.

The county seat is Huntingdon, with a population of 646.

Other towns in the county are, Hollow Rock, Mariboro, Buena Vista, Clarksburg, Lavinia, Atwood, Trezevant, McLemonsville and McKenzie

The principal religious denominations are, Cumberland Presbyterians, Methodists, Baptists and Christians.

The Nashville, Chattanooga and St. Louis Railroad, and the Memphis branch of the Louisville and Nashville Railroad pass through the county

CHESTER COUNTY.

This is a newly organized county, not given on the map. It is formed of fractions taken from the counties of Madison, Henderson, McNairy and Hardeman, and partakes of the topographical and other characters of those counties. Henderson is the county seat, and has a population of ——.

The Mobile and Ohio Railroad passes through the county.

CROCKET COUNTY.

The eastern portion of this county is somewhat hilly, while the western part is level

The soil is generally very good, being a sandy loam, resting upon a clay subsoil.

The county is well timbered, the western portion especially, containing much valuable poplar and white oak. These furnish the material for business in lumber and staves, which are rafted down the Forked Deer River, and find a market at New Orleans.

The principal streams are the South and North forks of the Forked Deer River, the former of which is navigable.

Alamo is the county seat, and has a population of 276.

Other towns are Bell's Depot, Friendship, Gadsden, Chestnut Bluff and Maury City.

The principal agricultural products are corn, wheat, oats, hay, cotton, Irish potatoes and sweet potatoes. Small fruits, such as strawberries, raspberries and plums, are cultivated in some localities, to considerable extent, and have proved highly remunerative.

The principal religious denominations are, Baptists, Methodists, Presbyterians and Christians.

Tax for county purposes, 40 cents per $100; school tax, 20 cents; road tax, 5 cents.

DECATUR COUNTY.

Decaturville is the county seat; population 252. Other towns are Perryville, Etna and Sugar Tree. The Tennessee River forms the eastern boundary of the county. Beech River and various smaller streams pass through the county. A portion of the county lies within the valley of the Tennessee River, and is very fertile. The other streams also have fertile valleys. The uplands are sandy, but reasonably productive. The principal crops are corn, cotton, wheat, oats and peanuts. Timber is abundant. There is some good water power. The county contains rich deposits of iron ore, not now worked. The religious organizations are those common to the State. The usual county taxes are levied.

DYER COUNTY.

Topography: Western portion in Mississippi bottom, level and subject to overflow. The bottom is bordered by a line of hills. The eastern half is level, or gently undulating.

Character of soil: Generally fertile.

Dyersburg is the county seat; population 1010.

Other towns: Newbern, Trimble and Finley.

Navigable streams: The Forked Deer and Obion rivers.

Other streams: Lewis' Creek, Pond Creek and Coon Creek.

Timber: There is much valuable timber, consisting of poplar, cypress, white oak, walnut, ash, cottonwood and maple.

Principal agricultural products: Corn, wheat, oats, hay, cotton, Irish potatoes, sweet potatoes and sorghum.

Manufacturing establishments: Seven saw mills, four flouring mills, one chair factory, two planing mills and one tobacco factory.

Religious denominations: Baptist, Methodist, Cumberland Presbyterian, Presbyterian and Christian.

Educational institutions: Normal Institute at Newbern County Academy and Gordon's High School at Dyersburg.

Taxes: County tax, 30 cents; road tax, 10 cents; school tax, 15 cents per $100.

Railroads: The Chesapeake, Ohio and Southwestern Railroad passes through the county.

FAYETTE COUNTY.

The soil is generally a dark loam in the southern part, resting on a red clay subsoil, but in the western portion of the county the subsoil is of a lighter color. The northern half of the county is level, but the southern half is rolling.

Somerville, the county town, has a population of 834.

Besides Somerville, there are six other towns in the county, to-wit: LaGrange, Moscow, Rossville, Macon, Oakland and Hickory Wythe.

The county is watered by the Loosa Hatchie and the north fork of Wolf River, which are both good mill streams.

Timber is abundant, and of good quality, consisting of oak, poplar, hickory, ash, cypress, gum, &c.

The principal agricultural products are corn, wheat, oats, hay, cotton, Irish potatoes, sweet potatoes and rye.

Its educational institutions are the Somerville Female Institute and the Williston Academy.

The rate of tax for county purposes is 30 cents per $100; road tax, 15 cents; school tax, 10 cents.

The religious denominations are Baptist, Methodist, Cumberland Presbyterian, Presbyterian, Episcopalian and Christian.

Railroads: The Memphis and Charleston Railroad passes through the southern portion of the county, and a branch road runs to Somerville, and the Memphis branch of the L. &. N Railroad passes through the northwestern corner.

GIBSON COUNTY.

Topography: Eastern portion undulating or hilly, western part level.

Character of soil: The hilly portions argillacious, and the level parts loamy.

Trenton is the county seat; population, 1383.

Other towns: Milan, Humboldt, Medina, Dyer Station, Rutherford Station, Kenton Station, Bradford Station, Idlewild, Yorkville, Eaton and Brazil.

Water courses: Rutherford's Fork of Obion River, Little North Fork and Middle Fork of Forked Deer River.

Water power: Sufficient for mill purposes.

Timber: Abundant, consisting of oak, poplar, gum, maple, walnut, ash, hickory, chestnut, &c.

Agricultural products: Corn, wheat, oats, hay, cotton, tobacco, Irish potatoes, sweet potatoes, sorghum and rye.

Educational institutions: I. O. O. F. Female College, at Humboldt, Milan College and other good schools.

Manufactures: Three buggy and wagon factories, one woolen mill, two plow factories, and one cotton compress, and a number of saw mills and flouring mills. Number of hands employed, 120.

Religious denominations: Methodist, Baptist, Cumberland and O. S. Presbyterian, Episcopalian, Christian and Catholic.

Taxes: County, 40 cents; school, 35 cents, and road tax 10 cents per $100.

The Memphis branch of the L. & N., the Mobile & Ohio, and the Chicago, St. Louis & New Orleans Railroads all pass through the county.

HARDEMAN COUNTY.

The eastern and central portions of the county are broken and somewhat hilly. The western portion is generally level. The soil in the western half is an argillacious loam, while the prevailing character in the east is a sandy loam. Bolivar is the county seat, and has a population of ——. Other towns in the county are Toons, Middleburg, Hickory Valley, Grand Junction, Saulsbury, U Bet, Middleton, Pocahontas, Crainsville, New Castle, Whiteville, Cedar Chapel and Cloverport. Hatchie River runs through the county, and affords steamboat navigation to Bolivar. The county is well watered with numerous creeks, among which Piney, Porter's Creek, Pleasant Run and Spring Creek afford good water power.

Timber is abundant, consisting of oak, hickory, ash, pine gum, walnut, cypress, poplar, etc. The principal agricultural products are corn, wheat, oats, hay, cotton, Irish potatoes, sweet potatoes, sorghum and rye.

There is a woolen mill near Bolivar, with a capital of $7,500, employing ten hands.

The principal religious denominations are Episcopalians, Presbyterians, Baptists and Christians.

County tax, 20 cents per $100; school tax, 10 cents; road tax, 5 cents.

Railroads: The Chicago, St. Louis and New Orleans Railroad passes through the county.

HARDIN COUNTY.

About three-fourths of the county is comparatively level, with undulating slopes. The remainder consists of low hills, with fertile valleys intervening. The uplands have a light sandy soil, resting upon a substratum of clay. The valleys are sandy and alluvial.

Savannah, which is located on the east bank of the Tennessee River, is the county seat, and has a population of 1006. Other towns in the county are Hamburg, Pittsburg, Coffee Landing, Cerro Gordo and Saltillo.

The Tennessee River runs centrally through the county from south to north. Indian Creek, Horse Creek, Hardin's Creek, Turkey Creek, Chamber's Creek, Lick Creek, Mud Creek and White Oak Creek water various sections of the county and flow into the Tennessee River. Some of these streams, especially Indian and Horse creeks, afford magnificent water power.

Hardin County is well supplied with valuable timber, including pine, poplar, oak, hickory, gum, wild cherry, etc. The soil of Hardin County produces freely of the crops common to Tennessee, as follows: Corn, wheat, oats, hay, cotton, Irish potatoes, sweet potatoes, sorghum, rye and peanuts.

Its educational interests are represented by Hardin College, located at Savannah, and other schools.

The tax for county purposes is 20 cents on $100; school tax, 20 cents; road tax, 5 cents; and bridge tax, 15 cents.

The principal religious denominations are Methodist, Cumberland Presbyterian and Baptist.

HAYWOOD COUNTY.

The county is generally level or gently undulating. The soil is a sandy loam and very productive. Timber is abundant and of good quality, consisting of hickory, ash, gum, poplar, walnut and numerous other varieties. The navigable streams are Big Hatchie and Forked Deer rivers. Other streams are Big Muddy, Lagum, Mud Creek and Sugar Creek. These streams afford fair water powers.

Brownsville is the county seat, and has a population of 2564. Other towns are Dancyville, Stanton, Woodville and Wellwood. The principal agricultural products are corn, wheat, oats, hay, cotton, Irish potatoes, sweet potatoes and rye.

All kinds of fruits and vegetables common to the State, do well in Haywood County.

The Baptist Female College and Wesleyan Female Institute are located at Brownsville.

A cotton mill is located at Brownsville, with a capital stock of $120,000, James A. Rogers, President. It consumes 1200 bales of cotton annually.

The county contains all the religious denominations common to the State.

Rate of tax for county purposes, thirty cents per $100: road tax, ten cents and school tax ten cents.

The Memphis branch of the Louisville and Nashville Rail road passes through the county.

HENDERSON COUNTY.

Lexington, the county seat, has a population of 329. The eastern portion of the county is quite broken, but the western portion is more level. Besides the county seat, there are several villages in the county to wit: Wildersville, Scott's Hill, Jack's Creek, Newsom, Mifflin and Sardis. The soil except on the ridges is very productive. The principal streams are Big Sandy, Beech River and Forked Deer. Timber is abundant and of good quality. Some of the streams afford fair water power. Henderson County contains large deposits of green sand or marl, which is valuable as a fertilizer. There are some good schools in the county, and the usual religious organizations.

HENRY COUNTY.

Topography: Northwestern portion level; other portions broken with wide bottoms. Character of soil: hills, argillacious valleys, sandy loam, fertile. County seat, Paris; population, 1767. Other towns, Como, Cottage Grove, Conyersville, Buchanan, Springville, Mansfield, Manlyville, Henry Station.

Navigable streams, Tennessee River on eastern border.

Other streams, Big Sandy, West Sandy, Middle and North forks of Obion River, Baily Fork, Bear Creek and other smaller streams.

Water power: All the streams named furnish good water power.

Timber, abundant; poplar, oak, cypress, chestnut, maple elm, etc.

Minerals, marble and iron; not now worked.

Principal agricultural products, corn, wheat, oats, hay, cotton, tobacco, Irish potatoes, sweet potatoes, rye and peanuts.

Principal religious denominations: Baptists, Presbyterians Methodists and Christians.

Educational institutions: Several academies in the county.

Taxes: County tax, ten cents per $100; school tax, fifteen cents; road tax, ten cents.

Manufactures: There are in the county three cotton factories, one flouring mill, two carriage factories, three tobacco factories and one woolen mill. Capital invested (estimated), $200,000. Number of hands employed (estimated), 200.

The Memphis branch of the Louisville and Nashville Rail road passes through the county.

LAKE COUNTY.

Topography, level, lying between Mississippi River on the west and Reelfoot Lake on the east. Character of soil, alluvial, mixed with sand.

County seat, Tiptonville; population, 946. Navigable streams, Mississippi River bounds it on the west. Other streams, none. Reelfoot Lake bounds it on the east.

Timber, cottonwood, gum and cypress abundant.

Agricultural products are corn, wheat, oats, hay, cotton, Irish potatoes, sweet potatoes, rye and barley.

Religious denominations, Baptist, Methodist and Presbyterian.

Taxes: County, twenty-five cents; road tax, fifteen cents, and school tax, ten cents per $100.

LAUDERDALE COUNTY.

Topography: The western portion lying in the Mississippi bottom is level. The central and eastern portions broken.

Character of soil, alluvial.

County seat, Ripley; population, 353.

Other towns, Durhamville, Henning, Fulton and Double Bridges.

Navigable streams, Big Hatchie, and on the western border, the Mississippi River.

Other streams, Cold Creek and Cane Creek.

Timber is abundant and of finest quality, including walnut, ash, hickory, poplar, oak, pecan, cypress, sugar, maple, gum, elm, sycamore and other varieties.

Principal agricultural products, corn, wheat, oats, hay, tobacco, cotton, Irish potatoes, sweet potatoes and barley.

Religious denominations, Methodist, Baptist, Cumberland Presbyterian, Presbyterian and Christian.

Taxes: county tax, 40 cents per $100; road tax, 10 cents.

Railroads: The Chesapeake, Ohio and Southwestern Railroad passes through the county.

MADISON COUNTY.

The surface of the county is gently undulating, in some parts hilly with some broad alluvial bottoms. The soil is a sandy loam with clay subsoil, and is generally fertile, and has many fine farms and well improved homes.

The county is well timbered with oak, poplar, hickory, ash, walnut, beech and various other kinds of timber. Water is abundant and good.

The Forked Deer River, which flows through the county, is navigable for small steamers. Besides this there are many streams of smaller size some of which afford very good water power

Jackson, the county seat, is a thriving little city of 5377 inhabitants.

Other towns and villages are, Pinson, Medon, Carroll, Oakfield, Spring Creek, Claybrook, Denmark, Harrisburg, Huntersville, Mason's Grove and Beech Grove.

Good potter's clay and tripoli are found in the county.

The principal agricultural products are corn, wheat, oats, hay, cotton, Irish potatoes, sweet potatoes, rye and syrup. Besides these, fruits and vegetables are grown in great variety and abundance.

Madison county has an oil mill (cotton seed) at Jackson, a pottery at Pinson, an ice factory at Jackson, planing mills and a number of saw and grist mills. The shops of the N. O., St. L. & C. R. R., and M. & O. R. R., are located at Jackson.

The educational institutions of the county are, the Southwestern Baptist University, the Memphis Conference Female Institute, the Medon High School and St. Mary's Institute.

The tax for county purposes is 40 cents per $100; school tax, 10 cents; and road tax, 5 cents.

About $500,000 is invested in manufacturing, giving employment to 500 persons.

Two railroads pass through the county—the New Orleans, St. Louis and Chicago, and the Mobile and Ohio—affording abundant facilities for transportation.

McNAIRY COUNTY.

The county is divided by a range of uplands, running centrally through it from north to south, with an eastern and a western slope. These slopes are divided into small valleys by spurs which run out from either side of the central ridge. The soil of the highlands is argillacious and sandy; that of the valleys a sandy loam and very productive. Purdy is the county seat. Its population is 243. Adamsville, Bethel, Falcon, McNairy, Montezuma, Ramer, Stantonville and Chewalla are located in the county.

McNairy County is well supplied with timber, consisting of oak, cypress, poplar, yellow pine, gum, walnut, hickory, etc. The county is watered with numerous creeks, among which may be named Cypress, Tuscumbia, Snake, White Oak, Muddy, Oxford, Owl, Huggins, Sugar, Lick and Mud creeks. The majority of these streams furnish very good water power for machinery. The Mobile and Ohio Railroad runs through the western half of the county.

The principal products are corn, wheat, oats, hay, cotton, Irish potatoes, sweet potatoes, sorghum and rye.

The principal religious bodies are Methodists, Cumberland Presbyterians, Christians and Baptists.

There are two high schools in the county—one at Purdy and the other at Montezuma.

County tax, 30 cents on $100; school tax, 20 cents; and road tax, 5 cents.

The green sand spoken of in Henderson County is very abundant in McNairy.

OBION COUNTY.

Obion County is generally level, though in some localities considerable hills are found. The soil is a dark loam, with clay subsoil, and very fertile. Troy, the county town, has a population of 341. Other towns are Union City, Rives, Kenton,

Woodland Mills, Harris, Fulton, Obion, East Troy, Palestine and Wilsonville. The water courses of this county are inconsiderable.

The timber of Obion County is surpassingly fine, consisting of the various kinds of oak, poplar, beech, birch, gum, sassafras, ash, hickory, maple, walnut, etc.

The principal products of the county are corn, wheat, oats, hay, cotton, tobacco, Irish potatoes, sweet potatoes, sorghum and rye.

There are two colleges in the county—one at Union City and one at Troy.

The religious denominations are Baptists, Methodists, Cumberland Presbyterians, Presbyterians, Christians, Episcopalians, Lutherans and Catholics.

Obion County has four furniture factories, four planing mills, fifty-four saw mills, one woolen mill, four flouring mills and two wagon factories. The capital invested in manufacturing is about one million dollars.

The taxes are as follows: county tax on $100, 30 cents; road tax, 10 cents; school tax, 20 cents.

Three railroads run through the county, viz: the Mobile and Ohio, the Nashville, Chattanooga and St. Louis and the Memphis and Paducah.

The number of hands engaged in manufacturing industries is about 1,500.

SHELBY COUNTY

Lies in the extreme southwestern portion of the State. Memphis is the county seat with a population, according to the census of 1880, of 33,593. The census was taken at a time when the city was seriously depleted of its population in consequence of epidemics. Since that time many of its former inhabitants have returned and the population, if enumerated at this time, would show a very large increase. By a well-devised system of sewerage recently adopted, and other sanitary improvements, it is confidently believed that the recurrence of disastrous epidemics is rendered improbable, and that henceforth there will be nothing to prevent the prosperity and rapid growth of the city.

Memphis is favorably located as a commercial centre and commands a large trade. Its business in groceries is said to be larger than that of any city in the Union with the single ex-

ception of Baltimore. As a cotton market it possesses great advantages and does an immense business. It has a good system of city schools besides a number of important educational institutions. Memphis, though more of a commercial than manufacturing city, has quite a number of manufacturing establishments. The Memphis and Little Rock, the Memphis and Louisville, the Memphis and Charleston, the Mississippi and Tennessee, and Chesapeake, Ohio and Southwestern Railroads centre at this point, and the Mississippi washes the foot of the bluff on which the city stands.

Other towns in the county are, Bartlet, Germantown, Raleigh Collierville, Kerrville, Woodstock, Cuba, White Haven, Ridgeway, Frayser, etc.

Wolf River and a number of smaller streams water the county.

The soil is generally good, the principal staple grown being cotton, of which Shelby county produces more than any other county in the Union with the single exception of Yazoo county, Mississippi. Besides cotton, all the usual products of the country are grown, much attention being given to fruits and vegetables. The culture of silk is also attracting attention.

Shelby county is well supplied with schools, and has the usual rates of county taxation.

In religion the people are divided among all denominations.

TIPTON COUNTY.

Topography, generally level, northeastern part somewhat broken.

Character of soil, black loam with clay subsoil, small portion calcareous.

County seat, Covington. Population, 798.

Other towns, Atoka, Mason, Brighton, Randolph, Mt. Zion, Garland and Tabernacle.

Navigable streams, Big Hatchie. Other streams, Indian Creek, Mathis' Creek, Cane Creek, Town's Creek.

Timber abundant. Oak, poplar, gum, cypress, ash, hickory, walnut, maple, etc.

Minerals, limonite and buhr in small quantities.

Principal agricultural products, corn, wheat, oats, hay, cotton, Irish potatoes, sweet potatoes, sorghum, rye.

Educational institutions, Covington Male Academy, Tipton

Female Academy, Somerville High School at Mt. Zion, Portersville Male and Female College.

Railroads, Chesapeake, Ohio and Southwestern runs through the county.

Principal religious denominations, Methodist, Baptist, Presbyterian, Christian and Episcopalian.

Taxes per $100, county tax, 30 cents; school tax, 10 cents; road tax, 15 cents; railroad, or judgment tax, $1.50.

WEAKLEY COUNTY.

The southern and western portions of the county are level, while the northern and eastern portions are undulating.

The soil is generally fertile and especially the southern and western sections. Very fine farming lands are however found in the other portions of the county.

Dresden is the county seat and has a population of 314.

Other towns in the county are, Greenfield, Sharon, Martin, Gardner, Ralston, Gleason, Palmersville, Boydsville, Dukedom and Middleberg.

The county is well watered by the three branches of the Obion River, Spring Creek, Cypress Creek, Mud Creek and Cane Creek. The three Obions and Spring Creek furnish considerable water power.

The county is abundantly timbered with oak, poplar, gum, cypress, hickory, beech, birch, maple, etc.

The principal agricultural products are, corn, wheat, oats, hay, cotton, tobacco, Irish potatoes, sweet potatoes, sorghum, and rye.

The institutions of learning are Dresden High School, Masonic Institute at Gleason, and the Martin Academy.

The taxes levied by the county are, road tax, 10 cents per $100; school tax, 10 cents; and for county purposes, 10 cents.

There are two stave factories in the county, with a capital of about $10,000.

Two railroads pass through the county, the Nashville and Chattanooga and St. Louis Road, and the New Orleans, St. Louis and Chicago Road.

The usual religious organizations are found in the county.

WEST TENNESSEE.

TABLE No. 1.

Showing Total Area of each County, Quantity of Improved Land, Average Value per Acre of Land in the County, Population, and Value of Property Assessed for Taxes.

COUNTY.	Total Area in Acres.	Acres Improved	Average Value of Land per Acre.	Population.	Total Value of Property Assessed for Taxes
Benton	243,300	50,060	$3 30	9,780	$905,889
Carroll	352,000	128,300	6 62	22,104	2,802,169
Crockett	166,400	69,288	9 72	14,108	1,741,860
Decatur	198,400	43,537	3 47	8,498	746,217
Dyer	364,800	79,185	6 49	15,118	2,508,350
Fayette	409,600	201,095	6 43	31,871	3,485,300
Gibson	352,000	155,426	10 16	32,685	4,878,675
Hardeman	380,400	125,462	5 22	22,921	2,857,722
Hardin	390,400	75,364	4 04	14,794	1,468,510
Haywood	364,800	142,207	6 80	26,054	3,036,254
Henderson	371,200	99,171	4 25	17,429	1,765,200
Henry	352,000	140,908	5 25	22,141	2,416,420
Lake	124,400	34,738	9 37	3,968	836,200
Lauderdale	262,400	61,975	5 36	14,918	1,733,809
Madison	371,200	129,946	6 67	30,874	4,299,155
McNairy	441,600	83,255	3 07	17,271	1,668,798
Obion	345,600	117,073	8 65	22,923	3,465,007
Perry	256,000	37,172	3 12	7,174	769,556
Shelby	441,600	204,432	11 11	78,433	18,876,626
Tipton	211,200	104,023	7 72	21,033	2,423,217
Weakley	396,800	135,151	8 00	24,538	3,076,120

LIVE STOCK.

TABLE No. 2.

Showing Total Number of Live Stock in each County.

COUNTIES.	HORSES AND MULES.	CATTLE.	SHEEP.	HOGS.
Benton	3,188	7,636	4,438	19,321
Carroll	7,428	10,754	7,166	35,398
Crockett	4,596	7,547	3,654	23,039
Decatur	2,686	6,557	5 710	17.140
Dyer	5,470	11,412	4,467	35,265
Fayette	8,631	18,612	4,360	28,536
Gibson	10,449	15,580	8,851	46,221
Hardeman	6,257	15,154	6,842	33,768
Hardin	4,700	10,507	8,380	29,641
Haywood	6,462	13,226	4,048	27,434
Henderson	5,492	11,798	7,678	33,180
Henry	7,697	9,599	8,139	40,095
Lake	1,518	3,560	500	11,375
Lauderdale	4,079	12,324	2,682	26,916
Madison	7,118	12,562	4.432	28,645
McNairy	4,950	12,571	10,107	25,247
Obion	7,545	12,614	6,974	46,924
Perry	2,462	4,806	4,799	16.764
Shelby	10,944	22,184	6,463	44,315
Tipton	5,421	12,529	4.651	29,945
Weakley	8,541	12,462	6,970	45,717

PRODUCTION OF CEREALS.

TABLE No. 3.

Showing the Cereal Productions of West Tennessee by Counties

County.	Barley.	Buck Wheat.	Corn.	Oats.	Rye.	Wheat.
Benton	.....	.....	562,354	26,832	118	19,787
Carroll	.....	.....	1,018,415	37,694	198	88,396
Crocket	.....	.....	626,762	16,171	219	54,431
Decatur	.....	.....	473,924	26,399	68	14,911
Dyer	.....	.....	900,726	37,371	325	101,523
Fayette	.....	.....	1,030,505	38,129	316	18,004
Gibson	.....	.....	1,449,633	44,282	325	162,477
Hardeman	.....	.....	767,324	20,807	333	23,991
Hardin	.....	.....	799,739	35,620	407	29,248
Haywood	.....	.....	730,949	29,299	319	29,278
Henderson	.....	.....	862,249	42,176	1424	46,941
Henry	.....	.....	1,128,660	35,407	961	124,537
Lake	.....	.....	536,265	4,266	.....	24,293
Lauderdale	.....	.....	580,797	17,398	55	24,953
Madison	.....	.....	906,255	31,542	516	50,918
McNairy	.....	.....	678,059	47,559	190	30,678
Obion	.....	.....	1,501,881	35,098	162	230,243
Perry	125	.....	423,461	23,874	565	16,051
Shelby	80	.....	996,210	72,764	1717	23,437
Tipton	51	.....	762,731	34,096	205	56,137
Weakley	.....	.....	1,307,873	22,583	467	171,835

CONCLUSION.

The design in preparing this Hand-book is to give the world in convenient form such information in regard to the State of Tennessee as will enable those into whose hands it may fall to form an intelligent idea of its resources and advantages. To present these fairly, so as to do justice to the State, and at the same time to avoid making this volume so large as to interfere with its general circulation, has been found to be a task of much difficulty.

Doubtless, to the mere student who reads purely for the purpose of storing his mind with information, a much more attractive book might be written upon the resources of Tennessee. But for the busy, active world, for men who are engaged in the active pursuits of life, the comprehensiveness of such a book, with its fullness of detail, would serve as a bar to its perusal. In pursuance of this view these pages will be found to contain simple statements of facts and conditions, and the reader will be left to form his own conclusions.

Tennessee has room for many thousands of industrious and energetic men—farmers, mechanics, tradesmen and laborers, as well as professional men—who will come and identify themselves with the country. Such as will come may be assured of a hearty welcome.

The time is propitious, for those who are seeking new homes, to come to Tennessee. Our fields are now teeming with the most bountiful crops ever grown in the State. Large investments are being made in mining and manufacturing enterprises, and activity prevails in all departments of business.

Trusting that the preceding pages may prove useful to many who are seeking information for practical purposes,

I subscribe myself, respectfully,

A. W. HAWKINS,
Commissioner.

CORRECTIONS.

Page 7, line 4, for southeasterly read *southwesterly.*

Page 26, 20th line, for $14.80 read $4.80.

Page 28, 21st line, for impunity read *impurity.*

Page 31, 4th line, for Dominion read *Devonian.*

Page 34, 7th line, for quality read *quantity.*

Page 35, 4th and 7th lines, for Dromillard read *Drouillard.*

Page 38, 2d line, for ball read *Bald.*

Page 47, 24th line, for Birdsing read *Byrdsong.*

Page 48, 10th line, after St. Louis, read, *and in Giles County on the Nashville and Decatur Railroad.*

Page 61, last paragraph. Since this paragraph was in type the entire line of this road has been completed.

Page 75, 1st line, for W. S. Doak read G. S. W. Crawford.

Page 76. Since this page was in type the State tax on property has been reduced to 30 cents, and other taxes proportionately reduced.

Page 78, 14th line, for Professor McBryde read Professor John W. Glenn.

APPENDIX.

COAL LANDS ALONG THE CINCINNATI SOUTHERN RAILROAD.

Dr. A. W. Hawkins, Commissioner of Agriculture, Statistic and Mines:

In response to your request for a short sketch of the coal lands and mines along the Cincinnati Southern Railroad, I submit the following, and call the special attention of the reader to the map of Tennessee, and then to the part colored red, showing coal field of Tennessee.

Beginning at the Kentucky State line, at Chitwood Station, on the Cincinnati Southern Railroad, there is found a fine vein of coal, of about an average of 56 inches in thickness, which, as you come southward along the Cincinnati Southern Railroad, appears well at Helenwood Station. There the vein has been opened in numerous places on the lands of the Helenwood Coal Company. Their mines are three-fourths of a mile east of the depot. The coal is of a very superior quality, and I think not excelled by any along the Cincinnati Southern Railroad. Coming on south this vein of coal is found entirely east of the Cincinnati Southern Railroad, at distances ranging from a half to four miles, the railroad passing below the level of this coal soon after leaving Helenwood.

We next come to the Coal and Mining Company mines, located one and a half miles southeast of Glen Mary Station. The vein they are now working is an average of 40 inches in thickness, and we have never been able to determine definitely whether or not it is the same as the Helenwood vein. As we come on south, the railroad is nearer the high mountains of the great triangle, until at Pilot Mountain, 103 miles north of Chattanooga, the (Glen Mary) vein is found three-fourths of a mile east of the railroad; and above that vein, about 250 feet below the top of the mountain, is found a fine vein of 52 inches. The Pilot Mountain Coal and Mining Company have secured

this coal field in their purchase of 7,000 acres, and are now developing it for the market.

All the coal above mentioned has proven to be equal to the great Coal Creek coal, so long mined and shipped all over the South from the mines in Anderson county, Tennessee.

South of this point the Cincinnati Southern Railroad may be said to leave the upper measures above mentioned, as no more high mountains are found near the Cincinnati Southern Railroad, except the north end of the great Crab Orchard Mountain, and the Pilot Mountain west of Big Emory River, opposite Nemo Station, and from one and a half to three miles distant, and in which I am satisfied the two veins mentioned in Pilot Mountain above will be found; but the heavy grades and the crossing of the Big Emory River will deter their development for some time, and one other high mountain known as Lone Mountain, two miles from the Cincinnati Southern Railroad and 85 miles north of Chattanooga. This mountain is being developed with the expectation of finding the two veins mentioned in Pilot Mountain, and for the formation of a coal company.

We next come to the section known as Walden's Ridge, the Cincinnati Southern Railroad running along its southeast base from Big Emory Gap nearly to Chattanooga, a distance of 80 miles. About ten miles northeast of Big Emory Gap and at the southeast base of Walden's Ridge is located the Oakdale Iron Furnace, now doing a large business and connected with the Cincinnati Southern Railroad; and the great Winters Gap coal property is also connected with the Cincinnati Southern Railroad by a narrow gauge railroad, whole length of 22 miles.

Next we come to Rockwood, 70 miles north of Chattanooga, at which place are located the coal mines and iron furnaces of the Roane Iron Company, which have proven to be both large and profitable.

The next is the Walden's Ridge Coal Company, located seven miles northwest of Spring City, on the Tennessee and Sequachee Valley Railroad, now being completed to their mines. Their coal is thought to be the western outcrop of the Rockwood vein, and of fine quality.

The next are the mines of the Dayton Coal and Iron Company, on Big Richland Creek, three miles northwest of Dayton. The Company is now building a standard gauge railroad from their mines to the Cincinnati Southern Railroad at Dayton, and

then on to the Tennessee River, a distance of about seven miles. They have three veins of good working coal, and are preparing to build two large iron furnaces on their property at Dayton.

The next is the Soddy Coal Company, located at Rathburn Station, 21 miles north of Chattanooga. This company is now among the largest shippers of coal in the South, and like the Dayton Coal and Iron Company, can work three different veins.

Next is the Daisy coal mines, at Melville Station, 17 miles from Chattanooga This company is not in active operation at present. It seems to be at the most southern point on the Cincinnati Southern Railroad for successful coal mining; and from this point the Cincinnati Southern Railroad gradually bears off from Walden's Ridge until it is about five miles from Walden's Ridge at crossing of Tennessee River.

Yours, truly,

WALTER ALLIN.

TENNESSEE.

THE MINERAL WEALTH OF THE OLD VOLUNTEER STATE.

Professor Colton's Address Delivered Before the Press Association.

At the meeting of the Tennessee Press Association at Bon Aqua Springs, Prof. Henry E. Colton, Geologist of the Bureau of Agriculture and Mines, was invited to address the Association on the mineral resources of the State, and did so in a brief and pointed address. By request of many of the members of the Association, Prof. Colton has furnished a synopsis of his speech, as follows:

Mr. President and Gentlemen of the Association: It gives me pleasure at any time to meet with members of the press fraternity. I am proud of the honor of having belonged to that brotherhood. At one time I was the youngest editor in North Carolina, and I have since had the honor to serve under Horace Greeley and Manton Marble. I have "pulled" the same old press that Admiral Cockburn burned in the National Intelligencer office, and I have written editorial for a paper that was printed on the latest style, continuous sheet, lightning press. But, unfortunately, gentlemen, I am not now in your honorable guild; I now deal in the dead past, you in the living present, and it is by your aid that I can make that dead past a part of the living present. I hate a fossilized idea so much that I dis-

like to deal in the fossil of the rocks around me. I prefer to handle and to bring to light the ores which, having passed the refiners' fire, give us the metals which furnish the iron ways of travel, which aid us in making the lightning do our bidding, convey our thoughts over thousands of miles of space, and enter into every form of comfort, convenience and luxury of commercial or domestic life. They are the living present of geology, the fossils its dead past, full of poetic interest, but valueless in a practical view.

But, gentlemen, this weather is too warm for generalities, nor have we time here for me to enter into anything like a full description of the mineral wealth of the State. It is the idea of some that all of it has been told. There can be no greater error. Dr. Safford's Geology of Tennessee is the most perfect book of its size I ever saw, and he may be said to have touched every point of the subject, but the foundation for elaborate search is only laid thereby. The Geology of the State of New York is twenty times as large, and Pennsylvania has just issued sixteen volumes, any one twice as large as Safford's, at an expense of several hundred thousand dollars, while Tennessee, with greater and more varied mineral resources than either, rests with an expenditure for geological work proper of not over $25,000. I say greater resources; some may challenge my statement. It is true, we have not the anthracite coal of Pennsylvania, neither has any other part of the world so much of that singular and valuable fuel, but with a less area of coal field we have more bituminous coal than Pennsylvania. That State has seldom more than one workable seam available; we have all over our field more than one, and over a large part of it there are piled up a dozen seams, eight to nine of which are over three feet thick. And all these are far above water level. We do not go down into deep shafts for our coal, but simply cut into the side of a hill towering far above any possibility of flooding or need of pumps. New York has not any coal, hence we easily surpass her there. In iron ores we have all that either or both States have, and much they have not. It is true that only a small part of the great Alleghany magnetic ore vein is in our State, but just in a stone's throw over the line in North Carolina is an immense quantity which is entirely dependent upon us for smelting fuel, and just now one of Pennsylvania's most wealthy iron men has finished, at great expense, a railroad, 45

miles long in our State, to reach these ores that he may carry them to Pennsylvania. New York has these magnetites, but not in any greater abundance than exist in our Alleghany region. The day will come when this Western North Carolina region, ours by the ties of trade and topography as it is in the relationship of a hundred years ago, will be as famed for its mines of magnetic and specular iron, ores of copper, nickel, manganese and chrome as is now the Lake Superior country, and all of them must come to our coal to be made useful, come to our coal not by the long lake and rail route, part of which is frozen half the year, but by only a few miles of direct railroad, without any trans shipment. Gentlemen, I may have stepped over into North Carolina a little in this, but it all means Tennessee, and it is only the mother deeding some of her wealth to the child. The coal of Tennessee and the vast mineral wealth of that Alleghany region were destined by nature to be joined together, and the railroads now being built are only completing the banns which nature proclaimed thousands of years ago.

I said that Tennessee's resources were greater and more varied than Pennsylvania or New York, and I add of any other State in the Union Others have more of one or another specialty, but she is independent in herself. She has a little of all, and a great deal of the two chief elements of wealth—iron and coal. She may not have as much zinc or lead as Missouri, but in her borders are rich mines of both; no State has in the same limited area a greater supply of copper ore; manganese of the best quality is in her mountains; cobalt and nickel are known to exist; and while her silver and gold may be scarce, yet both have been found, and it can not be said of them that they do not exist or that their quantity is positively known. Her petroleum has flowed out in hundreds of barrels, yet its quantity is equally an unsolved problem. Neither is West Tennessee, the fertile land of corn and cotton, deficient in a character of mineral wealth. Her clays have no superior in quality nor quantity, and the green sands of McNairy may yet be as great a source of profit to the miner and the agriculture of the State as those of Freehold and Monmouth, New Jersey. Hence, gentlemen, having as much bituminous coal as Pennsylvania, which New York has not, having in our reach and in our own mountains as much magnetic iron ore as either of these other States, having other iron ore in greater quantities than either State,

having copper, which neither has, lead and zinc, surpassing one, and perhaps fully equalling the other, comparing favorably with them in other minerals, having the green sands and clays which they bring from New Jersey, am I not sustained in saying that Tennessee's mineral wealth is greater and more varied than Pennsylvania or New York? It is for you gentlemen to aid me in publishing this to the world. There is no paper so insignificant but it has an influence with some one.

Besides the greatness and variety of her ores, Tennessee has iron ores of a character that exists in no other part of the world known to geological science except immediately on her border in Kentucky and a small strip in Illinois. I refer to the immense beds of iron ore in the fields now around you. Every shore in this great highland region, wherever you reach a certain altitude above that peculiar limestone which crops out of yonder hill, you will find iron ore, and the higher above that limestone the greater is likely to be the deposit of ore. This ore is found in a formation which nowhere else has any ore except in a few limited instances. Its position is different from any other in this State; there is none in like rocks in Ohio, Indiana, Pennsylvania or New York, nor in the budding and rich State of Virginia. This fact has caused many to think that its quantity was small. If it was not in Pennsylvania why it could not be much if anywhere else. But the same nature that has given us the piled up seams of coal, that has given us a half dozen distinct seams of red fossil iron ore, where Pennsylvania has one, that has given us that wonderful work, to us so common, the Middle Tennessee Basin, also placed all around the rim of that basin, near Col. Slatter's home in Winchester as well as here in Hickman, a vast belt formed of a series of beds of iron ore. The belt is rudely torn away on the north and somewhat on the south, but its crescent arms reach out to where they once were clasped. If the geology of Tennessee had no other point of interest, this vast deposit of ores and this peculiar location would of itself be a great attraction. I said many have stated that they were not in quantity, others said that they were local. I have paid particular attention to both ideas. My investigations show that the quantity is beyond any possible computation; that they are persistent and continuous from in Kentucky to the Alabama line; that mere outside show is not a positive indication of the quantity under the ground, and the absence of any sign of ore not a positive sign that it does not exist. In Lawrence County I have ridden for

miles where every step of my horse's feet touched ore, and I have ridden in Stewart a long distance where there was hardly a brown pebble, but a shaft or cut every now and then showed ore to exist beneath, and at one end of the ridge 120 tons per day were being mined. There is an end to everything human, but it will be many years beyond the lives of many of us before the ores of this region will cease to be found in quantity sufficient for the profitable manufacture of iron.

Beyond the Tennessee River is a belt of ore which has been looked upon with as much suspicion by Tennesseeans as the Highland ores have been by foreigners. I call this the Brownsport belt. There is no other ore like it in Tennessee, but it is largely used in Pennsylvania and Virginia. It was supposed to be of very limited area, but my examination shows that it is quite extensive, reaching up into Benton and probably into Henderson counties.

I do not propose to enter into details, but to briefly summarize the ores of Tennessee, coming from the magnetite and specular ores of the Unaka Mountains. In their foot-hills, in the Chilhowee Mountains and its lateral ridges, are immense deposits of limonite, skirting with a vast wall of almost solid ore, sometimes dozens of feet thick, the whole eastern side of the East Tennessee Valley. Coming across this valley we cross three lines of red fossil ore, the seams ranging from one to ten feet in thickness, and reach to the great continuous seam at the foot of the Cumberland Mountains—the seam that, without an interruption, stretches from Chattanooga to Cumberland Gap, over 165 miles, that is from three to five feet thick and pitches down into the earth, no one knows how far. A shaft 100 feet deep has not fathomed it. Then across this mountain in the Sequatchee Valley the same ore stretches out for seventy-five miles. In Pennsylvania, from a few miles of this same ore, millions of tons have been taken, and the seam supplies ore for many furnaces. How vast in comparison is our supply!

Coming across the mountains in the highland region of the foot-hills of Franklin, Coffee, Warren, White, Putnam and Overton, is a store-house of ore almost unknown and entirely undeveloped. Of the highland region and that west of the Tennessee I have spoken, but I have passed over the immense ore body of the coal measures of the Cumberland Mountains, because as yet and for many years, likely, it will lie unneeded and unused.

Gentlemen, our coal is unsurpassed in quality; the coke from it is no longer an experiment; for years St. Louis and Terre Haute furnaces have used it with satisfaction. Our own furnaces show its good qualities in their good results. No furnaces of like construction make iron with less fuel. The quantity of our coal is beyond any reasonable calculation, and our iron ores are of equal quantity. These are the great elements of wealth and prosperity. We need to have these elements better known and better appreciated. If we would be respected abroad we must respect ourselves at home. Few of our own people have any idea of the wealth of our own State. It is your privilege and your duty to educate them. The State needs a Tennessee spirit. Unfortunately divided in topography, in soil, products and climate, there has arisen a triple interest—a section partyism. It should cease forever. Every cotton plant that fails in West Tennessee adds to the burden on the Middle Tennesseean's grass or the cost of the East Tennesseean's coal or iron ore. Every time the yellow scourge travels through the streets of Memphis the wealth of other sections is decreased. Every brick laid for factory or forge on the banks of the Tennessee or the Cumberland; every new tunnel opened into the dingy seams which girt the sides of the Cumberland Mountains; every drift cut into the brown masses of the Highland Rim or the blue-named seams of East Tennessee, adds to the aggregate wealth of the whole State, and lessens the pro rata burden of everyone in West Tennessee. Give us your aid, gentlemen, then, in building up all the State, and let me urge you that wherever a new enterprise, be it mine or factory, wherever a new resource is noted, give it to the world through your columns. No one knows where the seed sown may bring forth. Some one in another State sees each and every one of your papers who sees no other paper from this State. A small item may start an inquiry that will cause the investment of thousands of dollars of capital. But above all, gentlemen, it is my view that Tennesseeans should be learned to appreciate Tennessee. Nowhere else on earth is there purer air or better water, nowhere a kindlier soil, one which yields more willingly to the hand of industry. She has every variety of climate, tree growth, soil and minerals. He who seeks can spend his summers amid the balsams of Canada or westward amid the flora of the southern tropics. Up amid the mountains of Johnson one may grow the cranberries and buckwheat of Northern New York, and in

Shelby the orange and the rice of Florida. The grand wild cherry towers 'mid the high dark cones of the Unakas, and the magnolia grows to perfection on the banks of the Hatchie and Forked Deer. No grander scenery exists in the world than lies hid amid the wild fastnesses of the Unakas: from no point in the world is there a grander view than from Lookout: nor can anywhere the eye rest on a fairer scene of agricultural beauty than from the western cliffs of the Cumberland: nor do nature's convulsions anywhere show a more wonderful piece of work than Reelfoot Lake. But I can not here enumerate all her advantages. Why should any one leave the State? Has any one ever left it who did not wish he was back, and has any one left it who would not have done as well here had he used the same economy and worked as hard? But some will go, and there is room for many thousands more than will stay, and I ask your aid in so bringing to light and notice every advantage and every resource of the State that the vacant places may be more than filled, so that the light of a hundred furnaces shall glare over the State, the busy hum of the spindle be heard on hundreds of now idle water powers, and not a bale of cotton be sent out of the State; every hill and vale of Middle Tennessee's fertile lands be strained to feed thousands of diggers of iron and coal and of copper, and West Tennessee reap not the least part of her reward in growing the cotton to clothe them and in the manufacture of the pottery for their use, which can not be made anywhere more cheaply or of better quality.

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